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ON THE SYNTAX OF WORD-DERIVATION IN ENGLISH. INFORMATION SYSTEM LANGUAGE STUDIES NUMBER SIXTEEN.

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DESCRIPTORS- *TRANSFORMATION GENERATIVE GRAMMAR, *LANGUAGE RESEARCH, *TRANSFORMATION THEORY (LANGUAGE), *TRANSFORMATIONS (LANGUAGE),

AN IMPORTANT HYPOTHESIS OF GENERATIVE GRAMMATICAL THEORY IN RECENT YEARS HAS BEEN THAT GRAMMATICAL TRANSFORMATIONS ARE MEANING-PRESERVING. THIS THESIS IS AN ATTEMPT TO SHOW THAT IF CERTAIN OTHER COMMON THEORETICAL ASSUMPTIONS ARE HELD CONSTANT, THAT HYPOTHESIS IS UNTENABLE. RULES OF WORD-DERIVATION--SUFFIXATION, PREFIXATION, COMPOUNDING--FREQUENTLY YIELD RESULTS WHOSE MEANING IS NOT PREDICTABLE FROM THEIR COMPONENT PARTS. IT IS ARGUED THAT SOME OF THESE MUST BE IN THE TRANSFORMATIONAL COMPONENT OF THE GRAMMAR OF ENGLISH. SOME DERIVATIONAL PATTERNS OF ENGLISH ARE ANALYZED IN DETAIL. ARGUMENTS ARE GIVEN THAT THE DERIVATION OF ADJECTIVES IN "-ABLE" MUST BE TRANSFORMATIONAL. NOMINALIZATIONS IN "-ITY" ARE SHOWN TO BE SEMANTICALLY ERRATIC. IT IS THEN ARGUED THAT THE FORMATION OF THESE MUST BE SUBSEQUENT IN THE GRAMMAR TO THE FORMATION OF "-ABLE" DERIVATIVES. ON THE ASSUMPTION THAT THE COMPONENTS OF THE GRAMMAR ARE HOMOGENEOUS, IT FOLLOWS THAT "-ITY" FORMATION MUST BE IN THE TRANSFORMATIONAL COMPONENT. IF RULES OF DERIVATION ARE IN THE TRANSFORMATIONAL COMPONENT, THEY MUST PARTICIPATE IN ITS ORDERING. SOME FACTS OF DERIVATION ARE EXAMINED IN THE LIGHT OF THIS CONSEQUENCE. ORDERING OF DERIVATIONAL RULES IS SHOWN TO OFFER A SIMPLE EXPLANATION OF SOME OTHERWISE PUZZLING PHENOMENA. IT IS THEN DEMONSTRATED THAT DERIVATIONAL RULES CANNOT BE LINEARLY ORDERED. A HYPOTHESIS IS PROPOSED AS TO THEIR ORDERING. THIS REPORT IS BASED ON A THESIS SUBMITTED AUGUST 1967 IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY AT THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY. (AUTHOR/AMM)

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on the syntax of word-derivation in english

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ON THE SYNTAX OF WORD-DERIVATION IN ENGLISH

by

Paul G. Chapin

September 1967

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ABSTRACT

An important hypothesis of generative grammatical theory in recent years has been that grammatical transformations are meaning-preserving. This thesis is an attempt to show that if certain other common theoretical assumptions are held constant, that hypothesis is untenable. Rules of word-derivation--suffixation, prefixation, compounding--frequently yield results whose meaning is not predictable from their component parts. It is argued that some of these must be in the transformational component of the grammar of English.

Some derivational patterns of English are analyzed in detail. Arguments are given that the derivation of adjectives in _-able_ must be transformational. Nominalizations in _-ity_ are shown to be semantically erratic. It is then argued that the formation of these must be subsequent in the grammar to the formation of _-able_ derivatives. On the assumption that the components of the grammar are homogeneous, it follows that _-ity_ formation must be in the transformational component.

If rules of derivation are in the transformational component, they must participate in its ordering. Some facts of derivation are examined in the light of this consequence. Ordering of derivational rules is shown to offer a simple explanation of some otherwise puzzling phenomena. It is then demonstrated that derivational rules cannot be linearly ordered. An hypothesis is proposed as to their ordering.

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I. OF LEVELS AND COMPONENTS

As linguistics matured as a science, abandoning the Neo-grammarian preoccupation with sound change for the Saussurean view of language as a structured and describable system, conceptual innovations were inevitable. New distinctions were made, domains of inquiry were subdivided in new ways: langue-parole, synchrony-diachrony. And linguists began to investigate in depth the abstract structures of which language is composed. Sound sequences were meaningful only as they formed groups, called morphemes. Morphemes, moreover, had descriptive as well as semantic significance: they fell into natural classes, "parts of speech", in terms of which larger grammatical structures could be described. Within morphemes, sounds alternated with each other in clearly discernible classes. The concept of linguistic level was developed. According to this concept, language was hierarchically organized into morphemic and phonemic levels, with a fairly small inventory of elements on the latter combining into a hug variety of elements on the former.

In this framework a whole set of new questions about language became apparent. How precisely could the levels be defined, cross-linguistically? What was the relationship between them? What, if any, was the psychological reality to them? Hypotheses were proposed in response. It was proposed that at the phonemic level only the distinctive sounds of a language appeared, but every word which sounded different had a unique representation. It was argued that information from the morphemic level played no role at the phonemic level.

In *Syntactic Structures* (Chomsky 1957) Chomsky extended the notion of linguistic level in two ways. He demonstrated that in an adequate grammar of a natural language, more than two levels were needed and that the additional levels were more complex in structure than the phonemic and morphemic levels. A *phrase-structure level*, at which "each sentence of the language is represented by a *set* of strings, not by a single string" (*op. cit*., p. 31), and a *transformational level*, at which "an utterance is represented even more abstractly in terms of a sequence of transformations by which it is derived" (*op. cit*., p. 47). were both needed.

Associated with the phrase-structure level and the transformational level were sets of rules of generation and transformation respectively. Jointly these sets of rules comprised the syntactic portion of the grammar. Another, formally distinct set of rules, the *morphophonemics,* related representations at the morphemic and phonemic levels. These sets of rules, which came to be called *components* (of a grammar), were seen to have significant properties. The precise definition of these properties became the important and challenging theoretical task undertaken by generative grammarians.

The new approach suggested some rather different answers to the theoretical questions about levels. In particular, it suggested that many of the hypotheses which had been offered were too strong. Information from higher levels was crucial in determining the application of rules at lower levels. The best grammars chose not to include any "taxonomic phonemic" level. But many new questions arose, as well. From increasingly detailed linguistic analysis, some assumptions and hypotheses emerged which became widely accepted.

One assumption which was implicit in descriptive practice from the earliest work in generative grammar on, and unchallenged theoretically, was that the components are logically discrete, that rules from one component are not interspersed among those from another. This assumption (we shall refer to it as the assumption of homogeneity of components) remained constant through the various developments in the conception of what the components are, how many there are, what their rules are like, and so on. Some such developments made it a stronger assumption. For example, in the earliest grammars written in a transformational framework (Chomsky 1957, 1964; Lees 1960) it was assumed that lexical items were introduced by rewriting rules of the phrase structure grammar which was the base component. This grammar was sequential, and the lexical items were part of its terminal vocabulary, but there was no constraint that no rule which introduced terminal vocabulary could precede any rule which introduced non-terminal vocabulary. Thus it was possible to order rules introducing lexical items anywhere in the base. This possibility allowed extra power in the constraints which could be placed on lexical selection. It would be possible to order the rules in such a way, for example, that nouns introduced into object noun phrases were on a different lexical category than nouns introduced into subject noun phrases, or as the objects of prepostions.

Later developments (discussed most fully in Chomsky (1965)) led to the conclusion that lexical items could not be introduced by rewriting rules, but rather had to be represented as bundles of syntactic features to be inserted at certain specified points in a completed Phrase-marker, according to appropriate non-distinctness conventions. Thus lexical items jointly comprised a separate component, the lexicon. On the assumption of homogeneity of components, the possibility of introducing lexical items at various points in the generation of a base phrase-marker was no longer available. Thus it was no longer possible to make the categorization distinctions mentioned above at no extra cost to the grammar. This limitation of possibilities was a strengthening of the theory of grammar to be credited entirely to the assumption of homogeneity of components.

An important hypothesis emerged after several years of work which was first presented and worked out in detail by Katz and Postal (1964). This was that transformations are meaning-preserving. In the earlier grammars referred to above, it had been postulated that some transformations were optional and had semantic effect, e.g., question, negative, and that others were obligatory and had none, e.g., number agreement. Katz and Postal argued that in every case of the former kind, there was independent syntactic evidence for an element in the underlying structures to which the rules applied which triggered the application of the rule, making it obligatory. These new elements could carry the semantic load presumed to have been carried by the rule. There were still some optional transformations, but they were limited to stylistic variants like particle movement, with no semantic effects. Their arguments were sufficiently convincing that subsequent descriptions and theoretical discussions have taken as an assumption that transformations are meaning-preserving, and that semantic interpretation is entirely of base structures.

A third assumption, which in generative grammar is an outgrowth of the development of the notion "lexicon", but actually harks back to traditional grammar, is that the lexicon is the repository of the idiosyncracies of the individual formatives of a language. This assumption has a strong and a weak form. The weak form is that the lexicon contains all the idiosyncracies; the strong form, that it contains all and only the idiosyncracies, that all regularities among formatives are expressed by rules in some component of the grammar outside the lexicon.

It is in an attempt to maintain the strong form of the assumption of a strictly idiosyncratic lexicon that many generative grammarians have assumed that rules of derivational morphology or, more precisely, rules for the generation of words with internal structure,[1*] are in the transformational component.[2] Many partial regularities, of varying degrees of generality, exist among the relations between stems and their derivatives, and among derivatives of a particular class. Moreover, it is frequently intuitively clear which is stem, and which derivative; that is, there is an intuition of "underlying form", analogous to the intuition of deep structure. These facts have led to the assumption that the underlying forms are the contents of the lexicon, as deep structures are products of the base grammar, and that the derivatives are formed from them by transformational rules, just as surface structures are formed from deep structures.

However, as Chomsky has correctly pointed out (in M. I. T. class lectures and private conversations) this move is incompatible with the assumption that transformations are meaning-preserving. A common characteristic of derivatives is that their meanings are not predictable from the meaning of their stems plus the particular derivational affix. We shall see numerous examples of this in the pages to follow. A couple of examples should be sufficient illustration for the present. To call a book readable may be a tribute to its lucidity, or may indicate that although it was inundated by the Arno, it is now sufficiently dried out to be read. Other -able forms seem not to have this property. Although calling a hat wearable predicts that it can be worn, it does not predict any particular pleasure to be derived therefrom. The derivatives insanity, purity, vanity mean the states of being insane, pure and vain respectively; but nationality does not mean the state of being national. Chomsky has proposed to maintain the assumptions of meaning-preserving transformations and homogeneous components and account for derivational relationships by an enriched theory of the lexicon (thus giving up the strong assumption of the idiosyncratic lexicon).

[1*] Numerical superscripts refer to footnotes listed following the text.

This thesis is an attempt to show that this proposal (which I shall call the lexicalist hypothesis) is untenable. It is an attempt, based on the facts of word-derivation in English, to show that the assumptions of meaning-preserving transformations and homogeneous components are mutually incompatible. The strategy will be to hold the assumption of homogeneity of components constant and show that, on that assumption, some non-meaning-preserving derivational rules must be located in the transformational component. Other assumptions made in the course of the work will be in accord with the lexicalist position, insofar as that position has been worked out. Where more than one alternative assumption seems reasonable, I shall explore the consequences of each.

Two general assumptions I shall make should be made explicit at this point. The first is an assumption as to what constitutes syntactic evidence, and may be viewed as a constraint on the semantic component. I assume that the semantic component is interpretive, and that the "projection rules" which accomplish the interpretation are sufficiently constrained in their power that they cannot duplicate known functions of the transformational component. This means that when a systemtic relationship of co-occurrence restrictions between two sentence or phrase patterns is found, that is evidence for a syntactic relationship between the patterns. Thus for example it will be asserted that the subject noun phrases of which derivative adjectives in -_able_ may be predicted are selectionally restricted as the objects of their stem verbs. This type of subject-object inversion is known on independent grounds to occur in the transformational component (in the passive transformation, for example); therefore it is taken as evidence that a sentence in which an adjective in -_able_ is predicated of some noun phrase is syntactically related to some sentence in which that noun phrase, or one identical to it, appears as the object of the stem of that derivative adjective. A logically possible alternative is an interpretive semantic rule which marks as anomalous any instance of -_able_ predication of a noun phrase where the verb phrase with that noun phrase as object and the -_able_ stem as main verb is anomalous. It is this alternative which is ruled out by this assumption.

The second assumption is a constraint on the richness of the lexicon. Even if the arguments that I shall give are accepted, it is logically possible to maintain all of the assumptions under study, including the strong assumption of an idiosyncratic lexicon, if the lexicon contains sufficiently powerful theoretical apparatus. I have given some examples of derivatives with unpredictable meanings. Let us return to the ambiguous word readable. One way of explaining its ambiguity is to assume that the lexical item read has two readings, similar in many respects, one of which has exactly the semantic characteristics necessary for predicting the deviant meaning of readable. Since this verb never appears except as the stem of -able, it is marked as obligatorily undergoing the -able rule. By repeating this process a sufficient number of times it is possible to render all of the transformations meaning-preserving, maintain homogeneous components, and have a lexicon which contains all and only the idiosyncracies of the language. With appropriate Boolean combinations of lexical features, the lexicon could express the generalizations implicit in the phrase "similar in many respects" and the relationship of material implication between a particular reading and a "rule feature." What makes all of this possible is the notion of marking a lexical item as obligatorily undergoing a rule.[3] To render my argument cogent, I assume that this is not possible, or at most that it is possible only under conditions restricted so as to eliminate the consequences just discussed.

The study of derivation in a generative grammar is at a very early stage. The tentative nature of the proposals to be presented here can scarcely be overemphasized. They will serve their purpose, however, if they prove useful in organizing data and provoking counterexamples; in this way they can serve to further our understanding of derivation, hence, of language.

II. OF DERIVATIONS AND TRANSFORMATIONS

A. Introductory

Two independent problems must be distinguished in considering the interplay between derivational rules[1] and the transformational component. One problem is whether the derivational rules are transformational. This is a question about the formal structure necessary to describe the empirically observable regularity. If the regularity is expressible only in terms of operations on constituent structure, then the rules are transformational. If it is expressible entirely in terms of the inherent characteristics of the formatives involved, say their systematic phonemic representations, context-free rewriting rules would suffice. Or perhaps some regularity is involved which can't be expressed in either of these ways; for example, that affixation rules apply only to forms with orthographic properties shared by at least three entries in the *Shorter Oxford Dictionary*.[2] Furthermore, even if it is determined that transformational power is required, it may be possible to specify constraints on the amount of power. Perhaps only local, or only strictly local transformations (Chomsky 1965, p. 215) are necessary; a finding of this sort would strengthen the theory. I will argue, in fact, that full transformational power is required to formulate some derivational rules.

The problem with which we are more concerned, however, is whether there are derivational rules in the transformational component. This question is logically completely independent from the first. The derivational rules might be transformational in form, but located in the base component or in some special component of their own; or they might be context-free rewrite rules located in the transformational component. The evidence which has bearing on this problem is necessarily indirect, depending on other assumptions about the formulation of the grammar. There are no inherent characteristics of a grammatical rule which tell us what component of a grammar it must be placed in. It is here that we make crucial use of the assumption of homogeneity of components. On this assumption, to show that a rule is not ordered before a component, it is sufficient to show that it depends in some way on the prior application of some rule known on independent grounds to be in that component. There are two kinds of such dependence which we shall use in our arguments. A rule depends on the prior application of another rule if it makes essential use of some element which is only introduced by the earlier rule, or if some constraint on its applicability depends crucially on the prior application of the earlier rule.

The notion of constraints on applicability deserves special attention in the field of derivation. Derivational processes have been aptly described as "typically sporadic and only quasi-productive" (Chomsky 1965, p. 184). In general it is not possible to predict that a given stem can undergo a particular derivational rule, but only that it cannot. That is, we can hope to specify (to some extent) the necessary conditions for (i.e., constraints on) the applicability of a rule, which distinguish possible from impossible forms, but not the sufficient conditions, which distinguish occurring from non-occurring forms. This is a weaker goal, but not without empirical import. The occurring forms should be a proper subset of the possible forms; if a tentative rule labels an occurring form as impossible, then either the rule is wrong or the form is exceptional. The possible-impossible distinction should correctly predict the intuitions of a native speaker, just as the grammatical-ungrammatical distinction between sentences should. One would expect dialect variation and neologism to be constrained by the bounds on possible forms. An example may help to make the distinction clearer. A derivational pattern of some productivity in English is verb, derivative adjective in _-ant_, nominalization in _-ance_. Some examples are _ignore_, _ignorant_, _ignorance_; _exult_, _exultant_, _exultance_; _resonate_, _resonant_, _resonance_; _hesitate_, _hesitant_, _hesitance_. Now one verb which nominalizes in _-ance_ is _resemble_, but in my dialect there is no adjective ?_resemblant_. Nonetheless, on the basis of the pattern one would predict ?_resemblant_ as a possible form, whose non-occurrence is accidental. On the other hand, consider the suffix _-hood_. One of the necessary conditions for _-hood_ stemhood is nounhood. Thus the _-hood_ rule would exclude _resemble_ as a stem; *_resemblehood_ is an impossible form. The predicted difference between ?_resemblant_ and *_resemblehood_ corresponds closely to my intuitions regarding the two forms. I would be much more surprised to encounter *_resemblehood_ as coinage or vocabulary from another dialect than ?_resemblant_.

A complete grammar of an idiolect would of course have to differentiate the occurring from the non-occurring forms, and to the extent that the rules we shall propose fail to make this distinction, they are incomplete. Evidence of their incompleteness, however, i.e., adducing forms which they permit but which do not occur, is not counterevidence to the rules unless some better generalization can be found which accommodates the extra facts in a principled way. True counterexamples to the rules are rather occurring forms which they do not permit (assuming of course that the occurring forms are not merely homonymous with derivatives of the class under consideration).

B. *Self-ing adjectives*

B1. Facts.

We shall begin our study with an examination of derivatives of the type exemplified by *self-indulging*, *self-lubricating*, taken as adjectivals rather than nominals. That is, we are concerned with sentences of the form

(1) Self-indulging boys become sybaritic old men.

(2) He took a self-lubricating drill from the shelf.

rather than

(3) Self-indulging is a sin.

(4) All the self-lubricating that machine can do is not enough.

A number of considerations argue for the transformational derivation of these compounds, which we shall call *self-ing* adjectives.

Observe first of all that the verbs on which *self-ing* adjectives are based, which appear as present participles in the derivatives, are always verbs which can take reflexive objects. Thus

(5) The boy indulged himself once too often.

(6) The pump lubricates itself every hour on the hour.

Many transitive verbs cannot take reflexive objects:

(7) John dropped $\begin{bmatrix}\text{his knife}\\ \text{*himself}\end{bmatrix}$ on the floor.

(8) Alexander avoids $\begin{bmatrix}\text{Alice}\\ \text{trouble}\\ \text{*himself}\end{bmatrix}$.

None of these verbs, and of course no intransitive verbs, can enter into *self-ing* adjective formation:

(9) *A self-dropping boy is likely to get hurt.

(10) *Alexander is self-avoiding to a fault.

(11) *A self-swimming actress is needed for this part.

This correlation already implies the involvement of the reflexive transformation in the derivation of self-ing adjectives. Further credibility is attached to that involvement by the presence of the formative self, whose most common occurrence in English is as a result of the reflexive transformation. The only other occurrences of self are in the so-called emphatic reflexive:

(12) Einstein himself didn't know the answer.

and, rarely, as a reference to the ego, or soul:

(13) Theology and depth psychology concur in their concern for the self.

This last, limited form is the only use of self which is not of transformational origin, and it is clearly ruled out as an element of self-ing adjectives by examples such as (2).[3]

(2) He took a self-lubricating drill from the shelf.

Finally, the paraphrastic relationship characteristic of transformational relatedness exists between sentence pairs such as

(14) a.Allen deludes himself.
b.Allen is self-deluding.

and

(15) a. This press inks itself.
b. This press is self-inking.

The meanings of (14a) and (15a) must be determined by the semantic component in any case. The meanings of their respective paraphrases can be predicted with no additional semantic interpretation if the sentences are transformationally related. The absence or drastic modification of such a relationship between supposed bases and derivatives is the chief motivation for the lexicalist hypothesis.

This semantic relationship does not hold for all *self-ing* forms. Some counterexamples are *self-seeking*, *self-serving*, *self-acting*. It is to be found in the large majority of cases, however. Appendix I presents in detail the intuitions of one informant regarding this and other generalizations pertinent to *self-ing* forms.

All of this evidence indicates that the *self-ing* rule is (a) in the transformational component, since it depends in various ways on the reflexive transformation, and (b) transformational, since it rearranges constituent structure. These facts are not particularly surprising or interesting on their own account, but it is important to establish them clearly, since they are important to the arguments to follow.

Not every reflexive construction can be transformed into a *self-ing* adjective. The constraints, however, are for the most part straightforward and based on independently motivated classifications of reflexives. First of all, only generic constructions like (14a) and (15a) may be transformed (see below, Section II B 3, for discussion of the notion *generic*). Verbs which can appear reflexively but never generically (in the reflexive) cannot serve as *self-ing* stems:

(16) Max $\begin{bmatrix}\text{shot}\\ \text{killed}\\ \text{cut}\end{bmatrix}$ himself.

(17) *Max $\begin{bmatrix}\text{shoots}\\ \text{kills}\\ \text{cuts}\end{bmatrix}$ himself.

(18) *Max is self-$\begin{bmatrix}\text{shooting}\\ \text{killing.}\\ \text{cutting}\end{bmatrix}$

It should be noted that sentences like (17) can generally be rendered grammatical by the addition of an adverbial of frequency or the phrase "for a living." With _kill_ these additions make the sentence semantically anomalous, but not, I think, ungrammatical. However, in the strictly isolated form (17) generic constructions with this class of verbs are ungrammatical.

Further constraints exclude two classes of generic reflexives. The first class contains the "middle" reflexives, those verbs which appear with the same reflexive force with or without the reflexive pronoun, like _shave_, _wash_, _dress_. Thus:

(19) Morton shaves himself.

(20) Morton shaves.

(21) *Morton is self-shaving.

(22) Minnie dressed herself.

(23) Minnie dressed.

(24) *Minnie was self-dressing.

The second class contains absolute reflexives like _behave herself_, _enjoy himself_:

(25) Sibyl behaves herself.

(26) *Sibyl is self-behaving.

(27) Charles enjoys himself wherever he goes.

(28) *Charles is self-enjoying wherever he goes.

All of the facts so far presented can be summarized as a rule:

SELFING

X	-	NP	-	V	-	N	-	SELF	-	Y	
				/+generic/ /-middle / /-absolute/		/+PRO/					
1		2		3		4		5		6	⇒
1		2		BE+5+3+ING		0		0		6	

This rule is not very satisfactory for several reasons. The derived constituent structure is unclear, formatives are introduced, and the restrictions on the verb, segment 3, are rather ad hoc. These problems interrelate in interesting ways.

B2. Problems

There are two problems with the derived constituent structure. The lesser is that the derived sequence BE+5+3+ING is under-structured. A constant use of the plus symbol implies that the same adjunction operation, whatever its precise details, is used in adjoining BE to 5 as in adjoining 5 and ING to 3. This is surely wrong; the sequence 5+3+ING has an independent status as a constituent, as shown by the fact that it can prepose (see (1) and (2)) and delete, leaving the BE behind:

(29) Ronald is as self-sacrificing as Mary is (self-sacrificing).

BE must therefore be fit into the derived constituent structure in some other way. Exactly how, in terms of the present formulation of SELFING, is unclear.

The greater problem is the status of the derived constituent 5+3+ING. We know that it is an adjective from its behavior in comparative and equative constructions, such as (29), and from the fact that it conjoins with adjectives:

(30) His mother was old and self-pitying.

Notice that one cannot conjoin verbs in the present participle with adjectives:

(31) *The child was small and running.

But what is the source of this information? Nothing in the structural description of SELFING is an adjective or implies the presence of one. Seemingly the adjective node must be introduced by the rule in some way.

This problem was noticed very early in the study of transformational grammar. In _Syntactic Structures_ (Chomsky 1957, pp. 72-75), Chomsky observes that _sleeping_ and _interesting_ can both be preposed:

(32) The child is sleeping ⇒ The sleeping child

(33) The book is interesting ⇒ The interesting book

Only _interesting_, however, can be modified by _very_ or appear as the complement of _seem_:

(34) The very interesting book

(35) *The very sleeping child

(36) The book seems interesting

(37) *The child seems sleeping

A grammar that accomplishes pre-positions (32) and (33) by the same rule will be simpler, i.e., more highly valued, than one that requires separate rules. It is therefore proposed that the adjective preposing rule is responsible for both (32) and (33). Examples (34)-(37), however, show that _sleeping_ fails to behave like an adjective in other ways. Chomsky suggests that constructions (34) and (36) are derived in the base by rules which include the following:

(38) VP → Aux + seem + Adj

(39) Adj → very + Adj

Since interesting is an adjective in the base, the argument goes, it can appear in the adjective position on the right-hand side of rules (38) and (39), while sleeping, which is not in the base at all but formed by an affix movement transformation, cannot. The adjective preposing rule, on the other hand, is a transformation, and on the assumption that it can apply after affix movement, sleeping can undergo it if it can be made to satisfy the structural description, that is, if it is an adjective at the time of adjective preposing. But it is easy to see that interesting and sleeping have a significant common property: they both have the form V + ing. Chomsky therefore proposes the following principle of derived constituent structure:

> If X is a Z in the phrase structure grammar, and a string Y formed by a transformation is of the same structural form as X, then Y is also a Z. (op. cit., p.73)

According to this principle, as soon as the word sleeping is formed by the affix movement rule, it becomes an adjective because of having the same structural form as interesting, and is therefore subject to the adjective preposing rule.

Many criticisms of detail could be made of this analysis, but they are unimportant. What is important is the proposed principle of derived constituent structure. If it or some modification of it is right, it will resolve the problem of the adjective status of the derived constituent in SELFING. If it is wrong we are no closer to the solution than we were.

Unfortunately the principle does not work, at least not in anything like the way it is stated. The most telling argument that this is so is based on conjunction reduction.

It is well known that most sentences with coordinated substructures are formed by reduction of coordinated full sentences. Thus

(40) John is young and John is happy.

goes to

(41) John is young and happy.

and

(42) John is a doctor and John is a politician.

goes to

(43) John is a doctor and a politician.

Broadly speaking, the similar parts of the conjoined sentences are reduced and the parts which are different are compounded. Conjunction reduction is not unconstrained, however. Although

(44) John is happy and John is a politician.

is grammatical,

(45) *John is happy and a politician.

is not. Adjectives and nouns cannot be conjoined. More generally,

> "If S_1 and S_2 are grammatical sentences, and S_1 differs from S_2 only in that X appears in S_1 where Y appears in S_2 (i.e., S_1= ...X... and S_2= ...Y...), and *X and Y are constituents of the same type* in S_1 and S_2, respectively, then S_3 is a sentence, where S_3 is the result of replacing X by X+AND+Y in S_1 (i.e., S_3= ...X+AND+Y...)."
> (*op. cit.*, p. 36; emphasis added)

Chomsky remarks, in fact, that "the possibility of conjunction offers one of the best criteria for the initial determination of phrase structure" (*ibid*.). But on these grounds ungrammatical examples like (31)

(31) *The child was small and running.

show that *small* and *running* are not constituents of the same type. Since *small* is unquestionably an adjective, *running* is not, and the principle of derived constituent structure fails.

It might still be argued that the affix movement rule applies after the conjunction reduction rule, and that at the time of conjunction reduction *running* is not a constituent at all and the rule therefore doesn't apply to it. This argument is shown to be false by

(46) The child is running and laughing.

Sentence (46) is derived from

(47) The child is running and the child is laughing.

Before affix movement applies, sentence (47) is

(48) The child BE ING run and the child BE ING laugh.

In (48) *ING run* and *ING laugh* are not constituents. Rather *BE ING* is a constituent, the auxiliary, and *run* and *laugh* are constituents, verbs. According to the rule of conjunction reduction the reduced form of (48) should be

(49) The child BE ING run and laugh.

After affix movement this becomes the ungrammatical.

(50) *The child is running and laugh.

Thus affix movement must apply to (48) and conjunction reduction to the result, (47); which is to say, affix movement must apply before conjunction reduction. Thus at the time conjunction reduction applies the constituents running, sleeping, etc. have already been formed. If the principle of derived constituent structure has been applied they are adjectives and should conjoin with adjectives. Since they do not so conjoin, they are not adjectives, and the principle of derived constituent structure is wrong.

It is important to note that this argument is within the terms of Syntactic Structures alone and is not based on some subsequent analysis of English grammar. Rules (38) and (39), the affix movement rule, and the given formulation of the rule of conjunction reduction would all be considered questionable by generative grammarians of English today, and are not necessarily advocated by their inclusion here. Their purpose is simply to show that the proposed principle of derived constituent structure does not work within the system in which it was proposed. Whether it can be reformulated within a new system so that it works properly is of course an open question; I know of no attempt to do so. We shall investigate an alternative approach to the problem of derivative constituency which involves no appeal to special principles of derived constituent structure.[4]

B3. The notion generic

To understand that approach it is necessary to consider for a while the grammatical notion generic. A variety of grammatical pheonomena have been referred to by this term, most notably by Jespersen in his

Modern English Grammar (henceforth MEG; Jespersen 1954, 1958, 1961). Thus in MEG II (§5.4) Jespersen discusses "The Generic Singular and Plural" as an aspect of *number*:

> An assertion about a whole species or class--equally applicable to each member of the class--may be made in various ways:
> (1) the sg without any article: *Man is mortal*;
> (2) the sg with the indefinite article: *a cat is not as vigilant as a dog*;
> (3) the sg with the definite article; *the dog is vigilant*;
> (4) the pl without any article: *dogs are vigilant*;
> (5) the pl with the definite article: *the English are a nation of shopkeepers*.

In MEG (§5.1_1 ff.) he speaks of a generic sense of restrictive relative clauses after personal and demonstrative pronouns, as in "He that fights and runs away may live to fight another day", or "Those who live by the sword shall perish by the sword".

In his discussion of present tense in MEG IV (§2.1) Jespersen is somewhat more equivocal about the applicability of the term *generic*:

> . . . he is ill/ ...I love her/ he runs several businesses/she plays wonderfully well (cp. she is playing wonderfully well...).../our children eat very little meat.../the sun rises in the east.../Dryden: None but the brave deserves the fair.
>
> These examples show a gradual transition from what is more or less momentary to "eternal truths" or what are supposed to be such--one might feel tempted here to speak of an "omnipresent" time or tense or better of generic time, but no special term is needed, and it is wrong, as is often done, to speak of such sentences as timeless. If the present tense is used, it is because they are valid now; the linguistic tense-expression says nothing about the length of duration before or after the zero-point.

He goes on, however, to say

> The difference between the ordinary and the generic present--gradual as the transitions between them are--is seen in the shifting and non-shifting in indirect speech...

That is, the sequence of tenses constraint that backshifts the tense of an indirect quotation when the tense of the matrix sentence is past is obligatory when the indirect quotation is non-generic, but optional or sometimes impossible when the indirect quotation is generic. For example:

(51) He told us that Ellen was writing a letter.

(52) *He told us that Ellen is writing a letter.

(53) He told us that Ellen writes books.

(54) ?He told us that Ellen wrote books. (not in sense of "used to")

Thus, by Jespersen's own observation, it _is_ necessary on syntactic grounds to distinguish between ordinary and generic present, and the earlier remark that "no special term is needed" for the generic present is simply wrong.

Finally, Jespersen discusses in MEG V (§§10.1_3, 24.3_1) and MEG VII (§4.7) the _generic person_. This is his term for that impersonal subject which in English is usually rendered as _one_ or _you_, in French as _on_, in German as _man_, and so on. Jespersen takes this to be the underlying or "latent" subject of the infinitive in sentences like

(55) To sing is a pleasure. (='one takes pleasure in singing')

and of what he calls the "pseudo-imperative" of

(56) Take it all together, the talk was hardly a success.

(57) I expect him to arrive in, say, five days.

The _take_ of (56) and the _say_ of (57) are imperatives "addressed to an imaginary indefinite second person (a generic person, as it were), rather than to anybody present" (MEG V, p. 474).

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(56) Take it all together, the talk was hardly a success.

(57) I expect him to arrive in, say, five days.

The take of (56) and the say of (57) are imperatives "addressed to an imaginary indefinite second person (a generic person, as it were), rather than to anybody present" (MEG V, p. 474).

The evidence for this last claim seems rather weak. Certainly the verbs in question are not addressed to anybody present, but why they should be called imperatives at all is not clear, since they share no properties with imperatives beyond appearing without overt grammatical subject. For example, a second person object can appear without reflexivizing:

(58) Any one could do it; take you, for example.

and tags are not permitted:

(59) *I expect him to arrive in, say, five days, won't you.

Moreover the number of verbs with this property is exceedingly small.

Jespersen mentions only take, say, never mind, and fancy. It is more proper to conclude, I think, that these verbs are simply idiomatic in this respect.[5]

As for the "generic person" as subject of the infinitive in (55), whether or not the analysis is correct, the terminology is unfortunate, since this sort of pro-form has nothing to do either with generic noun phrases or the generic tense in the senses just discussed. We shall therefore ignore this use of the term in what follows.

Jespersen's consistent use of a single term generic to describe features of noun phrases, verb phrases, and relative clauses is not, with the exclusions just mentioned, accidental. I shall try to show that there are intimate relationships among the phenomena so described.

Notice first of all that the "generic tense" is mandatory after a subject with "generic number." This is perhaps not evident in Jespersen's examples because he uses only the verb "be", but it is quite clear in the following related examples:

(60) Man worships many gods/*Man is worshiping many gods.

(61) A cat sleeps more than a dog/*A cat is sleeping more than a dog.

(62) The dog eats meat/*The dog is eating meat.(means a particular dog).

(63) Dogs obey their masters/*Dogs are obeying their masters.

(64) The English tend their garden carefully/*The English are tending their gardens carefully.

The starred progressive forms of sentences (60), (63) and (64) are possible only under the interpretation equivalent to saying the same sentence with the phrase ". . . these days" appended. This interpretation is quite different from the generic.

"Generic tense" is also mandatory in generic relative clauses. Consider (65) *He that is fighting and running away ...

Many transitive verbs may not appear in the "generic tense" if their subject and object noun phrases are both non-generic:

(66) Students read books.

(67) Students read Moby Dick.

(68) John reads books.

(69) *John reads Moby Dick.

(69) is acceptable only if an adverb such as often or whenever it is assigned follows the object.[6]

The converse relation also holds, although somewhat more weakly. A non-"generic-tense" verb (i.e., a progressive) is not possible, or receives the interpretation "...these days," when the subject and object are not both non-generic:

(70) John is reading Moby Dick.

(71) *John is reading books.

Intransitive verbs can appear in the "generic tense" only if their subject is generic, or if an adverbial of frequency follows:

(72) A horse neighs.

(73) *Dobbin neighs.

(74) Dobbin neighs a lot.

These facts illustrate some of the important ties between "generic tense" and "generic number." A further point to establish is the independence of these notions from other grammatical elements.

First, verbs are never inherently generic or non-generic. That is, no verb must, or must not, appear in the "generic tense," _except where this is predicted by some other syntactic property_. Thus stative verbs always appear in the generic, never in the progressive:

(75) John likes books.

(76) John likes Bill.

(77) *John is liking Bill.

But this class of verbs is also distinguished by the fact that they never appear in the imperative:

(78) *Like Bill!

or in a cleft construction:

(79) *What John did was like Bill.

Similarly, some classes of nouns, e.g. proper nouns, behave as a class with respect to their tolerance or intolerance of "generic number" (proper nouns are always non-generic), but no noun is inherently generic or non-generic where this is not so predicted.

This much is equivalent to saying that _generic_ is not a feature of nouns or of verbs. It is also incorrect to refer to "generic number" and "generic tense." Examples (60) - (64) suffice to show that the generic quality of noun phrases is independent of their grammatical number. Demonstrating the independence of generic verb phrases from tense is a little more difficult, since the preterite and past generic forms of verbs are the same. Still the distinction can be seen from the acceptability of adverbial phrases introduced by _throughout_:

(80) John read books throughout his life.

(81) John read _Moby Dick_ (*throughout his life).

But if _generic_ is not a feature of nouns or verbs, and is not a kind of number or tense, how are the various observed constraints and selections imposed? The conclusion seems inescapable that genericness is actually a characteristic of sentences, a "mood" like imperative, in the presence of which only certain base structures are admissible. This meshes with Jespersen's reference to generic clauses, and is very important to the study of adjective derivation, as shall soon be apparent.

The exact locus in a base structure of the generic morpheme, feature, or whatever, is an interesting question. In the examples discussed so far a complementary distribution with the progressive (BE + ING) has been evident (examples (60) to (65)). Thus generic might be taken as an alternate choice of this element of the auxiliary. This approach cannot work as it stands, since with the addition of the perfect element of the auxiliary (HAVE + EN) the progressive element can be used in a generic sense, as in

(82) John has been reading books for years.

Thus we cannot be obliged to choose between progressive and generic sentences, which would be entailed by alternating generic with (BE + ING).

The analogy with the imperative points to the possibility of handling the generic marker as an element of the pre-sentence, as is argued for the imperative in Katz and Postal (1964), or as a kind of higher level "performative" sentence as Lakoff and Ross have suggested for the imperative (class lectures, 1966-67). In what follows I shall make the conservative pre-sentence assumption, but without any particular evidence for doing so.

Obviously this short exploration of the notion generic barely scratches the surface. The distinctions we have been discussing between generic and non-generic noun phrases, for example, are at this stage of investigation largely intuitive and would be difficult to explain to a non-native speaker of English. Much the same is true of the "timeless" interpretation of verbs in the generic present. These distinctions are nevertheless real, and must surely be mirrored in many ways in English syntax. Their exploration is a fertile field for research in English grammar.

B4. Generic in adjective derivation

What is particularly relevant to our present purposes is the importance of the generic distinction in the derivation of adjectives. Not only SELFING, but many other rules which derive adjectives from verbs have the restriction that the verb must appear in the "generic tense." This is especially true of the participial adjectives, those ending in -ing. Thus for example French-speaking Canadians refers not to Canadians who are speaking French at the time of the utterance, but to Canadians who speak French, in the generic sense. A gum-chewing secretary chews gum (perhaps excessively), but need not be chewing it at the time she is so described. The tautological nature of (83), as opposed to the informative nature of (84), demonstrates this more clearly:

(83) That gum-chewing secretary of mine chews gum.

(84) That gum-chewing secretary of mine is chewing gum again.

The distinction discussed above between participial verbs as nominal modifiers and participial adjectives must be maintained here. A *sleeping child* is a child who *is sleeping* at the time of the utterance, not one who *sleeps* in the generic sense (although it is interesting to note that *unsleeping* does have this generic interpretation). Sometimes ambiguities are possible; the classical structurally ambiguous sentence

(85) Flying planes can be dangerous.

is in fact three ways ambiguous, where the third reading takes *flying* as a deverbal adjective, rather than as a present participial verb, thus distinguishing *flying planes* from, say, plywood mockups, rather than from planes which do fly but which are presently on the ground. That is, the three source sentences of (85) are

(86) To fly planes can be dangerous.

(87) Planes that are flying can be dangerous.

(88) Planes that fly can be dangerous.

There are limitations on the role of genericness in adjective derivation which I do not know how to characterize properly. Some compounds such as *epoch-making* and *record-breaking*, and simple derivatives like *tying*, as in "the tying run," are neither participial verbs nor related semantically to generic sentences when used to modify nouns. G. H. Matthews has pointed out (private conversation) that in the plural these modifiers too can be semantically generic:

(89) Epoch-making discoveries cause social upheavals.

Adjectives in attributive (preposed) position are normally interpreted generically. Adjectives which can be used in the progressive, however, such as *noisy*, are ambiguous between generic and progressive when used predicatively:

(90) That boy is noisy.

can mean that he is being noisy at the moment or that he is always noisy. This ambiguity carries over to the attributive:

(91) That noisy boy will disrupt the class.

This indicates that genericness is not a condition on the relative reduction or adjective preposing rules.

The close relationship between participial adjectives and generic underlying forms suggests the possibility of a rule in the base component which establishes it:

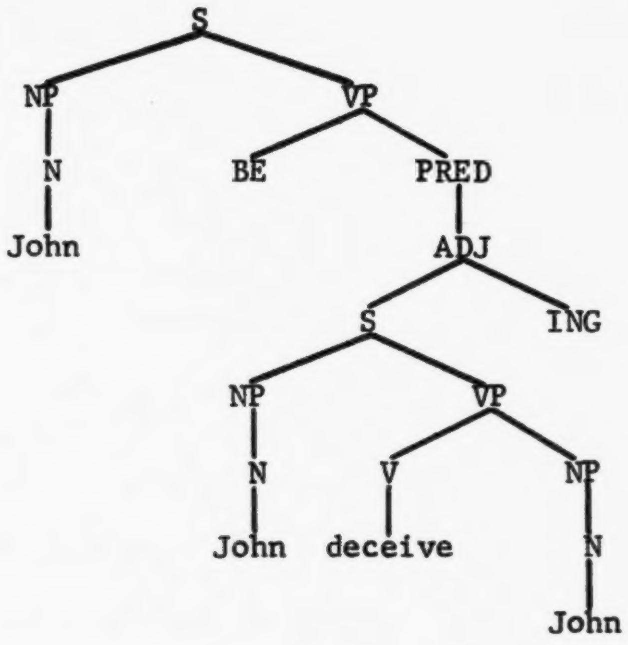
Adjective → S + ING

The ING is the characteristic terminal *-ing* of participial adjectives. It also functions to restrict the pre-sentence of the embedded sentence to the expansion *generic*. Such context restrictions on expansions of embedded pre-sentences are needed elsewhere in the grammar, for example to prohibit the imperative marker in embedded position, and to permit the question marker in embedded position only when the embedded sentence is the complement of certain verbs such as *know*, in which case it is spelled *whether* (for the arguments on this point, see Katz and Postal (1964)).

B5. Analysis of *self-ing* adjectives

Now a possible base tree (with irrelevant details suppressed) might be

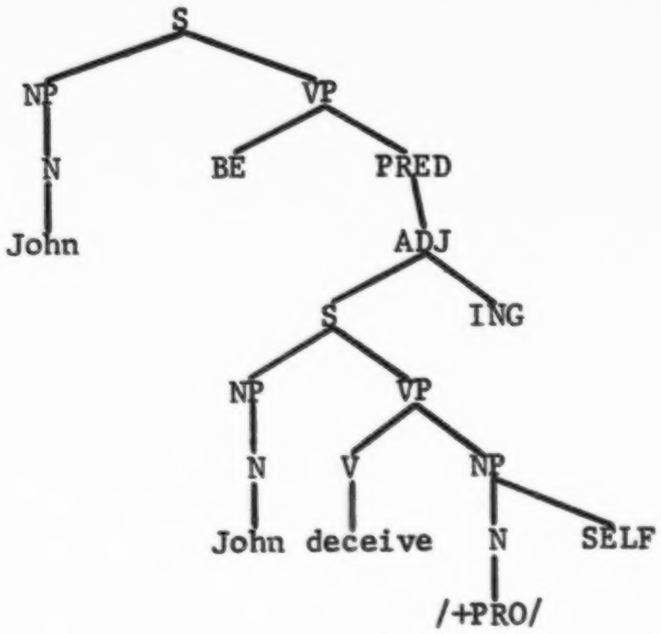
(92)


S
NP
VP
N
BE
PRED
John
ADJ
S
ING
NP
VP
N
V
NP
John
deceive
N
John

If the embedded sentence of (92) were to stand alone, the syntactic effect of making it generic would be that in the present tense it would come out as "John deceives himself," whereas in the present tense without the generic marker it would necessarily be progressive, "John is deceiving himself."

Applying the reflexive transformation to the embedded tree yields

(93)


S
NP
VP
N
BE
PRED
John
ADJ
S
ING
NP
VP
N
V
NP
John
deceive
N
SELF
/+PRO/

Now it is possible to formulate a revised version of SELFING which applies to tree (93).

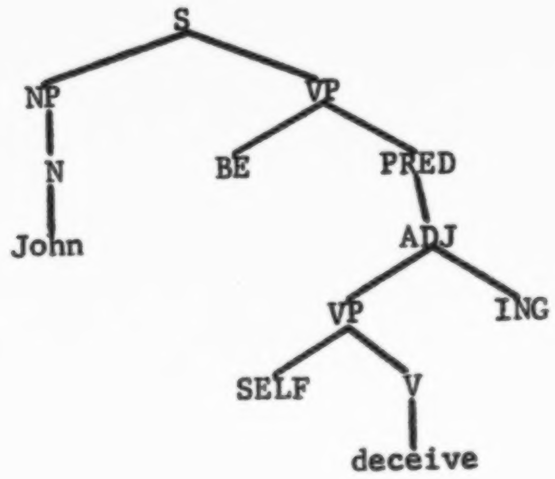
SELFING

X -	NP -	BE -	NP -	V - /-middle/ /-absolute/	N - /+PRO/	SELF -	ING -	Y	
1	2	3	4	5	6	7	8	9	⇒
1	2	3	∅	7+5	∅	∅	8	9	

Where: 2 = 4

The application of the rule is as follows. First the subject of the embedded sentence, identical to the subject of the matrix sentence, is deleted. By Ross' principle of tree pruning (Ross 1966) the embedded S node is automatically deleted, since it no longer branches. The reflexive morpheme self is adjoined as left sister to the verb. Finally the pronoun which forms the first element of the reflexive pronoun is deleted, and by a general principle of derived constituent structure according to which non-terminal nodes which dominate nothing are eliminated, the noun phrase which dominated it goes. The following structure results:

(94)



This is the correct structure at the level of detail of the present discussion for the sentence "John is self-deceiving."

Observe what has been accomplished by the revisions which have produced the new rule SELFING. The correct derived constituent structure of the predicate is arrived at in a straightforward way, using only principles of derived structure which are independently motivated. Importation of a non-terminal adjective node is unnecessary. No formatives are introduced by the transformation. And the restriction to generic bases is handled in a principled way. The only _ad_ _hoc_ features remaining are the restrictions on the verb, segment 5, that it is /-middle/ and /-absolute/, and the latter one of these is probably unnecessary, since _to_ _behave_ _oneself_, etc., are probably single lexical entries and a sentence containing them would not meet the structural description of SELFING in any case.

B6. Limitations of the analysis

The facts about _self-ing_ derivatives that we have discussed are accommodated rather nicely by SELFING. There are other facts which can only be handled by extensions or revisions of SELFING.

A very general and interesting phenomenon is the use of _self-ing_ adjectives to modify nouns which are not themselves the antecedents of the reflexive pronoun but are connected in some way with the antecedent. Thus

(95) The witness' testimony was self-incriminating.

In (95) it is not the testimony which incriminates itself, but the witness who incriminates himself with the testimony. Other examples:

(96) She has written a self-revealing book.

(97) Throckmorton always behaves in that self-aggrandizing manner.

(98) He made a few self-restraining gestures.

An extension of SELFING to handle these cases must follow an analysis of reflexivization sophisticated enough to explain their reflexive properties.

Another class of exceptional cases are _self-ing_ adjectives whose stem verbs cannot appear in reflexive expressions, although there is a certain reflexive force to them. Examples are _self-reproducing_, _self-generating_, _self-propagating_. One can say

(99) Ghetto riots are self-generating.

but not

(100) *Ghetto riots generate themselves.

What (99) means is

(101) Ghetto riots generate ghetto riots.

(101) differs from a reflexivizable sentence in that the subject and object noun phrases do not have identical referents. The noun phrases are, however, linguistically identical. Moreover, they are generic. These two conditions apparently make possible the derivation of a _self-ing_ adjective but not a straight reflexive.

An unexplained limitation on the productivity of SELFING excludes from derivation certain generic reflexive constructions:

(102) a. John frightens himself.
b. *John is self-frightening.

(103) a. Jerry amuses himself.
b. *Jerry is self-amusing.

(103a) is to be understood not in the sense of the absolute reflexive to amuse onself, meaning "to while away the time," but in the sense in which amuse can take a non-reflexive direct object, and alternates without change of meaning with "to be amused at."

An apparently similar limitation is

(104) a. Billy sees himself.

b. Billy is self-seeing.

The actual source of the exclusion of (104b), however, is that (104a) is not understood generically. Rather it means that Billy is looking in a reflective surface at the time of the utterance. Thus the import of (104) is that our definition of generic must be refined. A first approximation to the appropriate refinement is to say that perceptual statives (see, hear, feel, etc.) in the simple present tense are non-generic unless specified generic by some additional context.

Finally, insofar as it is relevant, the comparative evidence from other languages suggests that the self- of the compounds we are investigating is actually the self of the emphatic reflexive, which in most languages is different in form from the ordinary reflexive. Consider the following sentences:

(105) He wounded himself.

(106) Er hat sich verwundet. (German)

(107) Él se hirió. (Spanish)

(108) On ranilsya. (Russian)

Sentences (105) - (108) all mean the same thing, and are all ordinary reflexive constructions in their respective languages. In (106) the reflexive morpheme, corresponding to *self* is *sich*; in (107), *se*, and in (108) *-sya*. The same morpheme, varied phonologically in Spanish and Russian, appears as the object of a preposition:

(109) He wants the eggs for himself.

(110) Er will die Eier für sich.

(111) Él quiere los huevos para sí.

(112) On xochet yajtsa dlya sebya.

And all of these languages have a construction with this morpheme analogous to English *beside himself*:

(113) nicht bei sich

(114) fuera de sí

(115) vne sebya

In emphatic reflexive constructions, however, only English has the same morpheme:

(116) Der General selbst führte die Kompanie.
The general himself led the company.

(117) El presidente mismo fué al centro.
The president himself went downtown.

(118) Ivan sam kupil etot podarok.
John himself bought that present.

The emphatic reflexive morphemes are *selbst*, *mismo*, *sam*, which are all also used in their respective languages to mean *the same*. (It should be noted that English has a slightly archaic construction in which *the same* is used as emphatic reflexive: "Is that your girlfriend?" "The very same!") But the phrases for *self-confidence* are as follows:

(119) Selbst-vertrauen

(120) confianza en sí mismo

(121) samouverennost,

It will be noted that in Spanish, both the ordinary and emphatic reflexive morphemes are used, and in German and Russian, only the emphatic reflexive. The other languages do not have direct cognates for *selfish*, but in German the closest translation is *selbstsüchtig*, "self-seeking," and in Russian *samol,ubivyj*,"self-loving." (In Spanish it is *interesado*, "interested," as in "interested party.") Again the emphatic reflexive forms are used.

With the "mechanical reflexives" like *self-lubricating* the situation is the same in German and Russian. For example, the German word for *self-ignition* is *Selbstentzündung;* the Russian word is *samovosplamenenie*. This corresponds, interestingly enough, to the intuition conveyed to me by two informants, unaware of these facts or of each other, that to them these mechanical reflexives do not really mean that the mechanical subject is acting on itself, in the transitive reflexive sense, but *by itself*, i. e., unassisted. How these intuitions can be captured in a reasonable syntactic analysis is not clear.

If the proposed rule SELFING and the base form which undergoes it are essentially correct, two things have been established. SELFING is in the transformational component, since it depends on the prior application of the reflexive transformation, and it is non-local, since its structural description must be defined across an embedded sentence. We have thus in a sense already demonstrated that there are derivational rules in the transformational component. It is the weakest and least surprising sense, however, because self-ing compounds contain internal word boundaries, being more "derivative" than, say, noun-noun compounds only because they contain non-free elements (self and -ing). Also, although there are some discrepancies, in the majority of cases SELFING is productive and meaning-preserving. It is thus somewhat removed from the actual grounds of debate. Its importance lies rather as a link in the chain of evidence for locating in the transformational component some rules which produce derivatives containing no internal word boundaries, and in which the semantic relations between various input-output pairs are highly irregular.

C. *Other adjectives in self-*

C1. Facts

The next class of derivatives to be examined is closely related to the *self-ing* class. These are the compound adjectives of the form *self* plus deverbal adjective not ending in *-ing*. A wide variety of deverbal adjectives may be used as stems:

self-accusatory
self-assertive
self-communicative
self-congratulatory
self-contradictory
self-deceptive
self-defensive
self-dependent
self-destructive
self-disciplinary
self-effacive
self-explanatory
self-expressive
self-forgetful[7]
self-inclusive
self-indulgent
self-laudatory
self-neglectful[7]
self-perceptive
self-protective
self-reliant
self-revelatory
self-reverent
self-sacrificial

Several of the most common adjectivalizing suffixes appear in this list: *-(at)ory*, *-ive*, -($\overset{e}{\text{a}}$)nt, *-ial*, *-ful* (but see footnote 7), *-ary*. They alternate with the *-ing* forms, as in *self-sacrificing*, *self-revering*, *self-revealing*, *self-relying*, *self-protecting*, *self-perceiving*, *self-neglecting*, and so on. In most cases the suffixed alternant, when it exists, is felt to be more natural than the corresponding *-ing* form. Whether this is a fact about grammar or about performance is an open question.

C2. Derivation by lexical characterization

How are these words to be derived? That is, how are the regularities observable among them to be stated? Three possible ways suggest themselves. The weakest, outside of an outright list (i.e., a denial that there are any regularities), would be a lexical characterization something like the following:

$$\text{ADJ} = \text{self} + \Big[\ [/ + \text{refl}\ /]_{V} + \text{Aff}\Big]_{\text{ADJ}}$$

In words, "A possible adjective consists of the morpheme *self* followed by a derivative adjective composed of a verb stem, where the verb may be reflexivized, plus a derivational suffix." This characterization is not to be viewed as a rewrite rule, but rather as a sort of template of word-structure, a condition of lexical well-formedness. The restrictions mentioned earlier on *self-ing* verb stems would presumably hold here also, but the question does not arise, since middle verbs and idiomatic reflexives have no suffixational adjectival derivatives. The generic restriction is already implicit in the stem adjective; the derivative adjectives which serve as stems are semantically based on the generic senses of the verbs from which they are derived, just as *self-ing* derivatives are. Of course if my earlier proposal that genericness is a property of sentences rather than of verbs is right, there is no way in the present theory that such a restriction could be handled in the lexicon, but I shall ignore this difficulty here, assuming that the derivative adjectives to which *self* is to attach are somehow available. A further difficulty lies in the semantic interpretation of the compounds. In the SELFING rule, the semantics of the derivative was predicted by the semantics of the source, which would have to be interpreted in any case. But special interpretive rules would be needed for compound adjectives of the form given above. It seems likely that a great deal more structure, including a great deal which would duplicate structure needed independently for the interpretation of reflexive sentences, would be necessary. I shall not pursue this argument further here either. Instead, I shall point out two debilitating difficulties in the analysis itself.

The first difficulty is that the generalization based on the connection between the morpheme _self_ and the restriction that the stem verb be capable of reflexivizing is lost. Indeed, according to the earlier argument, _self_ is not even available in the lexicon, in the sense in which it is used in these derivatives. But even if it were, its strong connection with the reflexive transformation would remain and would have to be characterized.[8] The lexical rule given is no more general than it would be if _self_ were replaced by, say, _anti-_.

The second difficulty is that not every suffix which can form adjectives from reflexivizable verbs is tolerated under the 'Aff.' Specifically, _-able_ and _-worthy_ are not. Thus for example (122) and (123) are possible and (124) is not:

(122) This car starts itself.

(123) This car is self-starting.

(124) *This car is self-startable.

Similarly:

(125) Henry praises himself.

(126) ?Henry is self-praising.

(127) *Henry is self-praiseworthy.

Although (126) is questionable, (127) is much worse, completely ungrammatical. But both startable and praiseworthy fit the pattern as possible stems for self-attachment.[9] The pattern must be restricted to exclude them, and at first glance such an exclusion appears totally ad hoc.

At second glance, the proponent of the lexical characterization method of deriving compounds in self- might claim that derivatives in -able and -worthy are transformationally formed and are thus not available to the pattern at the point at which it is applicable. The transformational claim is correct, but premature, since to establish that the rule forming -able derivatives is in the transformational component is crucial to the rest of my argument. The argument would be unnecessarily weakened by assuming that as proved at this point. The real source of the exclusion of -able and -worthy is much more interesting, and depends on a transformational analysis not only of them, but also of the other self- adjectives, as I have argued above is necessary.

C3. Derivation from self-ing adjectives

A second possibility for deriving the self- adjectives is to derive them from their corresponding self-ing forms, perhaps simply as suppletive alternants. Thus self-indulging would become self-indulgent, self-sacrificing would become self-sacrificial, self-explaining would become self-explanatory, and so on. Whether the particular suffix a form takes is determined phonologically in these cases, or whether there are some syntactic constraints, is a matter for investigation.

This approach has a great deal to recommend it. All of the explanatory power of the SELFING rule is at work here, giving a principled basis for the presence of self, the restriction to reflexivizable stem verbs, and the semantics of the compound. The exclusion of the -able and -worthy classes could be explained by ordering the rules forming them before SELFING (either in the lexicon or in the transformational component), or by claiming that forms belonging to these classes do not correspond to any -ing forms, that the suffixes -able and -worthy have "something extra" which differentiates the adjectives they form from ordinary deverbal adjectives in -ent, -atory, etc. Intuitively it is obvious that this is the case. It is the linguist's task, of course, to determine as precisely as he can the nature of that "something extra," and why it should interfere with the formation of self- prefixed forms.

Notice, however, what is entailed by this approach. On the assumption of homogeneity of components, deriving the compound adjectives in self- from the transformationally derived self-ing forms means that the rules involved must be in the transformational component. Since it is inconceivable that the -ent of indulgent should be attached at a different point in the grammar than the -ent of self-indulgent, or the -atory of explanatory at a different point than the -atory of self-explanatory, this means that these adjectivalizing suffixes are attached in the transformational component. But now we are in the center of the theoretical issue mentioned in the introductory pages. The argument for locating any derivational process in the lexicon is based on its limited productivity and its failure to be meaning-preserving. Consider the status of -atory, -ent, and -ive in these respects.

C4. Irregularities in adjectives in *-atory*, *-ent*, and *-ive*

The suffix *-atory* appears simply as *-ory* after verbs ending in *-ate*. Some common adjectives in *-atory* are *accusatory*, *exclamatory*, *discriminatory*, *migratory*. (We are not concerned with nominal forms like *observatory*, *oratory*, etc.) Some pairs of existing and non-existing forms from the author's dialect should serve to indicate the limitations on productivity:

explain	explanatory	complain	*complanatory
accuse	accusatory	refuse	*refusatory
prepare	preparatory	compare	*comparatory
perforate	perforatory	decorate	*decoratory
discriminate	discriminatory	eliminate	*eliminatory

These examples were chosen in such a way as to minimize the phonological and syntactic differences between the valid and the invalid stems. That is, the list on the right represents forms one would have expected, *possible* but *nonoccurring* forms, as opposed to forms which would be excluded on phonological grounds, like perhaps **describatory*, or on syntactic grounds, like **ranatory*, from *rain*, which are *impossible* forms. I shall discuss this distinction at some length below.

The semantic relationships between *-atory* derivatives and their presumable stems are quite variable. The standard, more-or-less neutral interpretation is seen in adjectives like *discriminatory*, *obfuscatory*, *migratory*. Thus

(128) A discriminatory law = a law which discriminates

(129) An obfuscatory proposal = a proposal which obfuscates

(130) A migratory bird = a bird which migrates

In many cases, however, such a paraphrase is not possible:

(131) The circulatory system ≠ the system which circulates

(132) An obligatory visit ≠ a visit which obligates

More subtle distinctions can be found.

(133) He gave an inflammatory talk.

Sentence (133) means he gave a talk which inflamed the audience, whether or not that was his intention. On the other hand

(134) He gave an explanatory talk

means he gave a talk which was *intended* to explain; whether it succeeded in doing so is not known.

One form, *preparatory*, can be used as a subordinating conjunction as well as an adjective.

(135) He gave the deck several preparatory shuffles.

(136) He shuffled the deck preparatory to dealing.

Similar vagaries are seen among *-ent* derivatives. The following examples show some of the limitations on productivity:

depend	dependent	defend	*defendent	(defensive)
indulge	indulgent	divulge	*divulgent	
emerge	emergent	submerge	*submergent	

Here the neutral semantic interpretation is represented by forms like *absorbent*, *effervescent*, *persistent*:

(137) absorbent cotton = cotton which absorbs

(138) effervescent liquid = liquid which effervesces

(139) a persistent suitor = a suitor who persists

But again there are exceptional cases:

(140) a confident salesman ≠ a salesman who confides

(141) an urgent message ≠ a message which urges

It might be claimed that *confident* and *urgent* are actually lexical items, not derived from *confide* and *urge*. In this case, sentences (140) and (141) represent limitations on productivity of *-ent* rather than cases of semantic deviance.

The *-ive* suffix is somewhat more widely productive than the *-atory* and *-ent* cases. In some cases where one would have expected one of the latter suffixes, *-ive* appears instead. For example,

evaluate	*evaluatory	evaluative
defend	*defendent	defensive

Many limitations exist, however:

express	expressive	depress	*depressive
impress	impressive	compress	*compressive
protect	protective	detect	*detective
correct	corrective	suspect	*suspective

Examples of a neutral interpretation:

(142) an iterative rule = a rule which iterates

(143) an oppressive regime = a regime which oppresses

(144) a protective shield = a shield which protects

Adjectives in *-ive* which require some special interpretation outnumber those which do not. Rather than giving inequalities, as before, I shall simply give a list of *-ive* adjectives whose meaning is unpredictable from their stem verbs:

collective
conclusive
creative
exhaustive
negative
objective
prospective
respective
subjective

decisive
digestive
possessive
progressive
suggestive

The significance of these facts, as mentioned earlier, is not in their intrinsic interest, but in the way they reflect on the controversy about the locus of derivational processes. Semantic vagaries and limitations on productivity of the kind shown are the very problems which led to the suggestion that derivational relations between words, being highly idiosyncratic, be treated by an enriched theory of the lexicon rather than in the transformational component. But if the _self-_ adjectives are derived from their corresponding _self-ing_ forms, which are transformationally formed, this indicates that the suffixation rules involved are in the transformational component.

C5. A combined lexical-transformational approach

The proponent of lexical derivation may therefore opt for the third possibility of deriving the _self-_ adjectives. This would be to generate the suffixed adjectives in the lexicon and plug them into deep structures which would result in sentences like

(145) Harry was protective of himself.

(146) Josephine was reliant on herself.

These sentences clearly involve reflexivization in their derivation. A companion rule to SELFING, or a generalization of SELFING, would then apply to these sentences to yield

(147) Harry was self-protective.

(148) Josephine was self-reliant.

The new rule stated in words would be roughly as follows: "In a reflexive expression across a deverbal adjective, prepose the _self_ of the reflexive pronoun before the adjective and delete the remainder of the reflexive pronoun and the preposition associated with the adjective." This method of derivation would seem to capture the generalization about the relationship between the _self_ and the restriction to reflexivizable verb stems, and express what we know about the reflexive content of the meaning of _self-_ adjectives. It runs into some immediate difficulties, however.

In the first place, adjectives in _-atory_ do not appear in reflexive expressions, even when they appear in _self-_ compounds.

(149) *Alex was always congratulatory of himself.

(150) *Marvin's proposal was contradictory of itself.

The rule must thus be made obligatory for these cases. But the situation is somewhat worse, since _-ive_ adjectives vary as to whether they appear in reflexive expressions. Thus (145) is acceptable, but

(151) *Alice was defensive of herself.

is not. So adjectives in _-ive_ must be individually marked as to whether they must undergo this rule or not, contrary to our assumption that such marking is impossible.

The lexicalist must resolve these difficulties if he is to make use of this combined approach. If he can do so, the approach has certain advantages for him. Besides capturing the generalizations mentioned above, it explains the exclusion of deverbal adjectives in

-able and *-worthy* from *self-* stem position; they never appear as the pivot of a reflexive expression. That is, there is no possibility like

(152) *The car is startable of itself.

so the rule cannot apply. The question of interest for our present discussion is then a prior one: Why do deverbal adjectives in *-able* and *-worthy* "never appear as the pivot of a reflexive expression"? Is there any systematic way in which these derivatives differ from others which can explain their exclusion?

The problem can perhaps be made clearer in another way. For each of the adjectivalizing suffixes found in *self-* compounds, there are some derivative adjectives formed by that suffix which do appear in reflexive contexts and some which do not (here "reflexive context" is taken to include the *self-* compounds themselves). Thus for example the following expressions are ungrammatical:

*self-migratory
*self-inventive
*self-existent
*self-resistant
*self-mournful

although the list of *self-* compounds given earlier contains deverbal adjectives in each of these suffixes. But notice also the ungrammaticality of the following forms:

(migrated)
(invented)
(153) *Jack (existed) himself.
(resisted)
(mourned)

The stem verb governs the ability of its derivatives to appear in reflexive contexts. If the verb can appear reflexively, so can its derivatives; if it cannot, they cannot.

This government by the verb, however, does not hold in the _-able_ and _-worthy_ cases. The following sentences are all grammatical:

(154) This door locks itself.

(155) The new clock adjusts itself.

(156) That tribe governs itself.

(157) Winthrop trusts himself.

(158) Alice blames herself.

The verbs _lock_, _adjust_, _govern_, _trust_, _blame_ can all appear reflexively. They can also all appear as stems of derivatives in _-able_ -- _lockable_, _adjustable_, _governable_, _trustable_, _blamable_ -- and the latter two, nominalized, can also appear as stems of derivatives in _-worthy_ -- _trustworthy_, _blameworthy_. But unlike the earlier cases of derivative adjectives, where the ability of the stem verb to appear in reflexive constructions determined the ability of the derivative to appear as the stem of a _self-_ compound, these derivatives can never appear in such a compound, even when the stem can appear reflexively, as in cases (154)-(158). That is,

*self-lockable
*self-adjustable
*self-governable
*self-trustable
*self-blamable
*self-trustworthy
*self-blameworthy

are not possible English words. Is there a principled explanation for their impossibility?

To suggest an answer to this question, we shall study the suffix -able in some detail, and ignore henceforth the -worthy cases, although they are excluded for similar reasons. There are two reasons for this choice of emphasis. First, the -able suffix is by far the more productive of the two. The Reverse English Word List (Brown 1963) lists only 45 words ending in -worthy. Of these only 20 can be taken as separate cases having (nominalized) verbs as stems. The remainder consist primarily of negations of these formed with the prefix un-, and of another class of -worthy derivatives exemplified by seaworthy, roadworthy. Words ending in -able, on the other hand, occupy more than 36 full pages, at 100 words per page. A few of these are words like stable, gable, etc., but the vast majority are derivative adjectives. This sort of numbers game is indicative of relative degrees of productivity, but of greater significance is the fact that perfectly acceptable forms in -able which are not in the word list are easy to think up. A few examples are programmable, typable, pushable, parkable; indefinitely many more could be adduced. The -worthy list, on the other hand, is very probably exhaustive. -able suffixation therefore offers a much larger body of data on which to base generalizations. The second reason for studying the -able cases is that it is crucial to subsequent stages of the argument to establish -able derivation in the transformational component. An argument will be given which is based on -able as transformational and which does not apply to -worthy.

D. Adjectives in -able

D1. Methodological remarks

Any speaker of English knows that the following sentences are paraphrases:

(159) These coupons are redeemable for cash.

(160) These coupons can be redeemed for cash.

(161) One can redeem these coupons for cash.

Similarly:

(162) This passage is untranslatable.

(163) This passage cannot be translated.

(164) No one can translate this passage.

And again:

(165) He is distinguishable by the scar on his left cheek.

(166) He can be distinguished by the scar on his left cheek.

(167) One can distinguish him by the scar on his left cheek.

These paraphrastic relationships, seen to hold through such diverse grammatical structures as "exchange complements," negation, and instrumental adverbials, have led to the widespread assumption that the members of each paradigm are transformationally related. (Lakoff 1965, p. IV-3; Annear and Elliot 1965, p. 8; Peterson 1966). Here the words of Katz and Postal come to mind:

> Throughout the discussion . . . We have tacitly made use of a principle whose explicit formulation should have heuristic value for those engaged in investigating syntactic structure . . . . The principle can be stated as follows: Given a sentence for which a syntactic derivation is needed; look for simple paraphrases of the sentence which are not paraphrases by virtue of synonymous expressions; on finding them, construct grammatical rules that relate the original sentence and its paraphrases in such a way that each of these sentences has the same sequence of underlying P-markers. Of course, having constructed such rules, it is still necessary to find *independent syntactic justification* for them. (Katz and Postal (1964), p. 157. Emphasis theirs.)

All too frequently in contemporary research in generative grammar, the heuristic principle has been adopted without its accompanying caveat. Syntactically demonstrable relatedness between sentences can explain paraphrase, but paraphrase cannot of itself predict syntactic relatedness. Indeed, under the analysis I shall present of sentences like (159), (162), and (165), there are no known rules of English grammar that can produce the exact forms of the given paraphrases from their underlying structures of (159), etc. (This is not to say, of course, that there *are* no such rules).

An additional methodological device which the author has found useful in syntactic research, especially at the word level, is to conjure up a large number of impossible forms built on the general pattern of the form under study and inspect them to discover what syntactic properties are responsible for their impossibility. In this way, one hopes to learn the constraints on the rule being studied. At the most simplistic level, for example, we find no forms like **deskable*, **glassable*, **greenable*, **tallable*. After a few such examples, we may conclude that neither nouns nor adjectives may serve as _-able_ stems.[10] What can be discovered by deeper application of this device?

D2. Facts

One obvious bifurcation of verbs is into transitive and intransitive. A few experiments demonstrate that intransitive verbs are excluded as stems for _-able_. Some impossible forms are _*sleepable_, _*goable_, _*talkable_, _*strugglable_, _*waitable_, _*sittable_, _*happenable_. An apparent counterexample is the form _jumpable_:

(168) The fence is jumpable.

is grammatical. But of course in (168), the stem _jump_ is understood transitively, not as in

(169) The little boy jumped.

but as in

(170) The horse jumped the fence.

Other forms commonly used intransitively, like _slide_, _protrude_, _sink_ receive similar interpretations in their derivatives _slideable_, _protrudable_, _sinkable_.

Among transitive verbs, further limitations hold. Verbs which cannot appear in passive constructions are not possible _-able_ stems. Thus we have

(171) Marvin had a book.

but not

(172) *A book was had by Marvin.

Concomitantly, *haveable is not a possible form. Other transitive verbs which cannot appear in passives are resemble, owe, want; and the corresponding -able forms are impossible: *resemblable, *owable, *wantable. Some forms have two uses which are distinct (though related) semantically and also in that on one reading, they undergo passivization, on the other, they do not. Examples of these are marry and weigh.

(173) Rowena married Alfred. (i.e., they became husband and wife)

(174) A rabbi married Alfred. (i.e., performed the ceremony)

(175) Alfred was married by a rabbi.

(176) *Alfred was married by Rowena.

(177) Charles weighed the sack of potatoes.

(178) The sack of potatoes weighed five pounds.

(179) The sack of potatoes was weighed by Charles.

(180) *Five pounds was weighed by the sack of potatoes.

These forms can have -able derivatives, but the derivatives do not share the ambiguity of the active voice of the forms, having rather only the reading corresponding to the passivizable use. This is seen in the interpretation of a sentence like

(181) Alfred is marriable in a cathedral.

which does not mean that any lucky girl that can get Alfred into a cathedral can claim him as husband, but rather that Alfred is a member of the church in sufficiently good standing that when he decides to marry, he may receive that sacrament in a cathedral. For weigh, a difference in number agreement indicates the possible and impossible forms:

(182) Five pounds (e.g., of potatoes) are weighable on that scale.

(183) *Five pounds is weighable on that scale. (On the pattern of "Five pounds is the weight of that bag of potatoes")

A further class of constraints on _-able_ adjectives has to do not with inherent features of their verb stems but with the selection of nouns of which they may be predicated. Consider the following pairs of good and bad sentences:

(184) Peace is attainable.

(185) *Peace is readable.

(186) Little Willy was unendurable.

(187) *Little Willy was inflatable.

(188) Mount Whitney is climable.

(189) *Mount Whitney is deceivable.

The source of the exclusions is obvious: the subject of an _-able_ adjective is selectionally restricted as the object of its stem verb. Sentences (185), (187), and (189) are impossible just because _*to read peace_, _*to inflate little Willy_, and _*to deceive Mount Whitney_ are impossible. This pattern holds throughout the class of _-able_ derivatives.

This object-subject selectional interchange, plus the restriction to passivizable verbs, suggest strongly the involvement of the passive transformation in the derivation of adjectives in _-able_. This also conforms to the semantic relationships evidenced by the paraphrases (159) - (167). And there is another, independent argument that _-able_ forms embody a passive element.

D3. Passives and Reflexives

It is a well-known fact of English grammar that passives and reflexives are mutually exclusive; that is, a sentence in the passive voice may not have a reflexive pronoun as the object of its _by_-phrase. Thus for example, although

(190) John shaved himself.

and

(191) John was shaved by the barber.

are both grammatical,

(192) *John was shaved by himself.

is not.

It is not by any means clear how this restriction is to be formulated. Arguments from ordering are sufficient by themselves, since in either order that the passive and reflexive rules can appear with respect to each other, an _ad hoc_ restriction must be imposed on the second to prevent its application to the output of the first. Thus if reflexive precedes passive, a special restriction must be placed on the passive transformation to prevent its transforming (190) into

(193) *Himself was shaved by John.

On the other hand, if passive applies first, there is no obvious way to make the reflexive transformation not apply to

(194) John was shaved by John.

which would yield the ungrammatical (192), while applying correctly to

(195) John was delighted with John.

yielding the grammatical

(196) John was delighted with himself.

The basic approach that has been taken by people who have dealt with this problem has been to restrict the passive transformation such that it will not transpose noun phrases with identical referents.[11] Whether this approach will succeed, and how independently motivated it is, are questions beyond the scope of this thesis. For present purposes it is sufficient to note that the restriction exists.

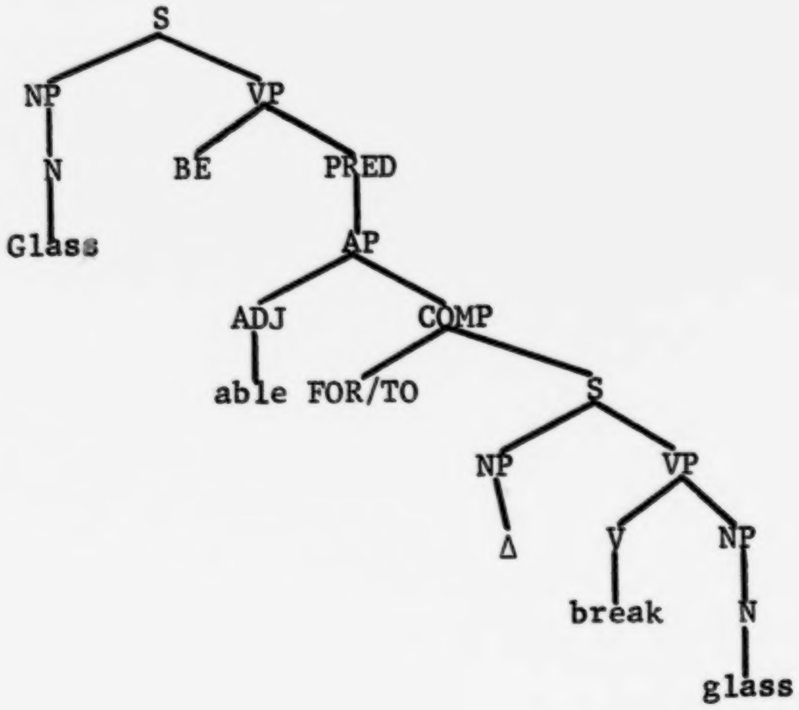
But now notice that we have a principled reason for the exclusion of _-able_ adjectives from the list of deverbal adjectives which can be compounded with _self-_. We argued that whatever the source of the deverbal adjectives themselves, the reflexive transformation was essentially involved in the formation of the _self_- compounds containing them. Since the passive and reflexive transformations cannot both apply to the same structure, if _-able_ adjectives involve the passive transformation in their derivation, as our earlier discussion indicated, this would explain why they cannot undergo whatever aspect of reflexivization is involved in the derivation of _self-_ compound adjectives. The credibility of each of these arguments is enhanced by their convergence in this fashion.

Exactly how the passive-reflexive restriction applies to exclude compound adjectives beginning with *self-* and ending with *-able* depends not only on the nature of the restriction itself, but also on the formulation of the rules which derive *-able* adjectives and the *self-* compounds. After proposing a formulation of the *-able* rule, I shall offer a tentative solution.

D4. A base structure for *-able* derivation

The following base structure is proposed for the sentence

(197) Glass is breakable.



Some discussion of this structure is in order. Notice first of all that the verb-object selectional restrictions are provided for in the embedded sentence, where the verb is the stem verb of the *-able* derivative and its direct object is identical to the subject of the matrix sentence, i.e., the subject of which the -able adjective is predicated.[12] The subject of the embedded sentence is the designated representative of the category Noun Phrase. This amounts to an assertion of two facts about -able derivatives: that there are no selectional restrictions on verbs which can serve as -able stems as to subjects they may co-occur with, and that no subject for the embedded sentence ever appears overtly, in an agentive by-phrase. There seems to be dialectal variation in both of these patterns. It is difficult to find transitive verbs which cannot take human subjects. One such in my dialect is rust, used in a sentence with no associated adverbial.

(198) *Adam rusted the knife.

Some people find this sentence grammatical with an associated "means" adverbial:

(199) ?Adam rusted the knife by leaving it out in the rain all night.

The question is, is rustable a valid form, as in

(200) ?The knife is rustable.

If for a given dialect it is not, and in that dialect (198) is ungrammatical, then the subject noun phrase of the embedded sentence in (197) must be restricted to /+human/. Following this sort of investigation, one might discover other restrictions; I am not aware of any.

The possibility of a by-phrase associated with -able adjectives is also an interesting question. Certainly most noun phrases are totally excluded as objects of by:

(201) *This flat tire is repairable by Harry.

(202) *Four spades is biddable by North.

(203) *Jessica is seduceable by handsome computer programmers.

For some _-able_ forms, however, attachment of _by anyone_ seems acceptable:

(204) Marijuana is obtainable by anyone.

(205) A new invention is patentable by anyone.

and in some cases even more specific noun phrases are possible, with _any_ followed by some noun:

(206) This flat tire is repairable by any mechanic.

(207) The book he is writing will be readable by any child.

All of this indicates that for some dialects at least the expansion of the subject noun phrase of the embedded sentence in the structures of sentences similar to (197) may be not only the designated representative (Δ) but also the pronoun _anyone_ and perhaps noun phrases introduced by _any_ whose head noun is selectionally appropriate as the subject of the verb which becomes the stem of the _-able_ derivative.

The structure of the embedded sentence, both as given in (197) and with any or all of the possible modifications just mentioned, is fully in accord with what is known about possible deep structures of English sentences. The PRO-Noun Phrase subject is to be found in simplex sentences as the underlying subject of sentences which undergo passivization and agent deletion. The structure of (197) does deviate, however, from independently motivated well-formedness, the deviations being occasioned by the analysis of _-able_ derivatives we are offering.

D5. A problem

The embedded sentence in (197) is introduced as the complement of the adjective able. It is preceded by the complementizer for-to. Able is lexically characterized as taking for-to complements, so this part of the structure is regular. The sentence deviates from regularity, however, in that able normally requires that the subject of its complement be identical to its own subject, and this is not the case in the structure of (197). These comments can be made clearer by examples. Consider the adjective ready. Ready is also lexically capable of taking for-to complements, as in

(208) Mark is ready for Henry to hit the ball.

In (208) the subject of the complement phrase, Henry, is distinct from the main subject, Mark. However, it may also be identical:

(209) Mark is ready for Mark to hit the ball.

In (209), which is not a sentence as it stands, the second occurrence of Mark and the preposition for are deleted by independently motivated transformations[13], yielding the sentence

(210) Mark is ready to hit the ball.

Now consider the sentence

(211) Mark is able to hit the ball.

Using exactly the same rules which derived (210) from (209), (211) may be derived from

(212) Mark is able for Mark to hit the ball.

Such a derivation is desirable to enable the simplest statement of the selectional restrictions on the verb of the complement. That is, on the basis of such a derivation, one could exclude

(213) *Mark is able to elapse.

on grounds of the exclusion of

(214) *Mark elapses.

But for _able_ there is no sentence corresponding to (208):

(215) *Mark is able for Henry to hit the ball.

This means that a constraint on _able_ is that the subject of its complement be identical to its own subject. But in the structure of (197), the subject of _able_ is _glass_, and the subject of the complement is the designated representative of the category Noun Phrase (or perhaps the pronoun _anyone_ or a noun phrase beginning with _any_, as per the discussion above).

One could take this deviation in several ways. It could be taken as indicating that the proposed structure is wrong and must be revised. This is possible, but on balance I feel that the motivations for (197), some of which are yet to be discussed, outweigh the difficulties. It could be that there are two _able's_ in the lexicon, one of which appears alone in sentences and has the constraints mentioned, the other of which only appears as a suffix and may appear in (197). Since a great deal of semantic and syntactic information, as well as the phonological characteristics, would be duplicated in the two forms, this would be a loss of generality. An alternative solution, preserving the generality, would be to make the constraints on _able_ conditional; the condition would be to the effect that if the subject of _able_ and the subject of its complement were not identical, then the structure in which it appeared would have to be such that the rule forming -able derivatives could apply to it.

There are still other possibilities. It has been proposed (for example, by Ross and Lakoff (1967)) that lexical insertion can take place at various points in the transformational component (thus violating homogeneity of components). Since we will argue that the embedded sentence of (197) is passivized before the -able derivation rule applies, thus making its subject identical to the subject of the matrix sentence, it could be that able is inserted after this identity becomes effective, perhaps when the transformational cycle reaches the level of the sentence in which able belongs. The arguments which have been offered for delayed lexical insertion are in my opinion somewhat weak; and in any case a further deviation in able insertion, to be discussed below, could not be resolved in this way. A possible solution which is more worthwhile investigating is that certain deep structure constraints on lexical items can be satisfied at some stage in the transformational component, by an intermediate derived structure; that is, that transformations can "unmark" deep structure violations of specified sorts. Such a mechanism, which has been discussed by Ross in classroom lectures under the rubric of "amnesties", could work in two ways. It could be that certain violations are such as to render some otherwise optional transformation obligatory, or it could be that some constraints can be satisfied by derived as well as deep structures, where the derived structure could be formed in any of several ways. We shall consider each of these possibilities.

D6. Amnesties by making transformations obligatory

An obligatory transformation is one the non-application of which to a structure to which it is applicable results in an ungrammatical output. An example is the number agreement transformation of English. The sentence

(216) Our dog chases cats.

differs from the ungrammatical

(217) *Our dog chase cats.

only in the application of the number agreement transformation, the overt result of which is the second _s_ of _chases_. An optional transformation, on the other hand, may or may not be applied to a structure to which it is applicable; either way, the result is a grammatical sentence. Thus

(218) Adam threw away the ad.

differs from

(219) Adam threw the ad away.

only in that the particle movement transformation, which is optional unless the object noun phrase is a pronoun, has applied in the derivation of (219). But both (218) and (219) are grammatical. Optional transformations produce stylistic variants.

It can plausibly be maintained that the passive transformation is optional.

The passive of

(220) Frank ate the yogurt.

is

(221) The yogurt was eaten by Frank.

and both are certainly grammatical. The real question of optionality with regard to passivization is whether a passive and its corresponding active have the same base structure, or whether there is some deep structure element which "triggers" the application of the passive. If there is such an element, then the applicability or non-applicability of the passive transformation is determined in the base, and it is not optional. An argument for a "passivizing morpheme" could be made on the basis of a demonstrable difference in meaning between some active-passive pair, where the difference is clearly due to passivization. Chomsky (1957) claimed that such pairs could be found when quantifiers were involved; his examples were

(222) Everyone in the room knows two languages.

(223) Two languages are known by everyone in the room.

where in (223) the two languages are understood to be the same in every case, while in (222) various languages may be involved. This claim was attacked in two ways. Katz and Postal (1964) disputed the facts, claiming that (222) and (223) could in fact both be interpreted both ways. Lakoff (1965) agreed that (222) and (223) differed in meaning, but traced this difference to a more complex analysis of quantifiers than had previously been assumed, according to which (222) and (223) would have different structures irrespective of the applicability of the passive transformation.

Another argument for a passivizing morpheme would be to show a regular relation between passivizability of a verb and some co-occurrence restriction on that verb. It could then be claimed that the passive morpheme was a dummy member of the syntactic class with which the verb could (not) co-occur. Lees (1960) noticed in passing a class of verbs which could not passivize and which could not take manner adverbials. The argument was made by Katz and Postal (1964) and extended by Chomsky (1965) that this reflected an underlying regularity, *viz*. that *by Passive* was a possible constituent of manner adverbials in the deep structure. Lakoff (1965) pointed out that this was insufficient, since many verbs (e.g., *know*, *believe*, *feel*, *see*) which can passivize cannot take manner adverbials. He concluded that the class of verbs which cannot passivize must be so marked lexically.

This brief survey of recent studies of the passive transformation has been intended to establish the truth of the assertion which introduced it, that it is at least plausible to maintain that the passive transformation is optional, although the question is by no means closed. We shall assume in the discussion that follows that passivization is optional. It will become evident that this assumption is not absolutely crucial; the discussion will revolve around optional transformations, exemplified by the passive, not the passive transformation as optional. Analogous arguments could be given in principle for any optional transformation, although the necessary supporting facts would of course be different.

Consider the verb try. Try, like able, can take infinitive complements, as in

(224) Mark will try to hit the ball.

Forms like (224) can be derived by independently motivated rules if we assume that the complement of try is actually an embedded sentence introduced by the complementizer for-to. However, there is a restriction on try, like on able, that the subject of the embedded sentence be identical to the subject of try. This restriction distinguishes try from, say, hope.

(225) Mark will hope to hit the ball.

(226) Mark will hope for Henry to hit the ball.

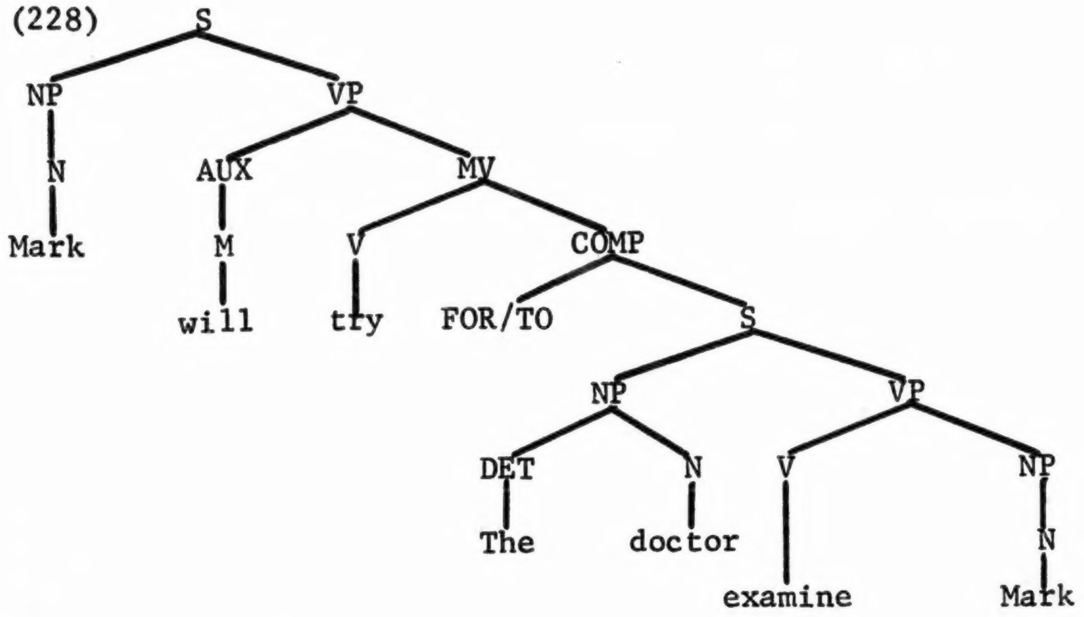
(227) *Mark will try for Henry to hit the ball.

But the following sentence is grammatical:

(228) Mark will try to be examined by the doctor.

A reasonable deep structure for (228) would be the following:

(228)



In this structure, as in the structure of (197), the identity restriction has been violated; the subject of the embedded sentence, the doctor, is not identical to the subject of try, Mark. If all and only the normally obligatory transformations which are applicable to structure (228) are applied, this violation manifests itself in the ungrammatical surface sentence

(229) *Mark will try for the doctor to examine him.

The difference between (229) and (228), of course, is simply that in the derivation of (228) the passive transformation has applied to the embedded sentence. Since this is the only difference, and since it makes the difference between grammaticality and ungrammaticality, then by our earlier discussion one could claim that the passive transformation is obligatory for this structure, though optional in general.

The try case is clear because (228) is fully grammatical. This is why it has been introduced. The situation with the analogous able case is less clear, since able cannot take a passive complement and retain full grammaticality. To understand the able situation, we must digress briefly and consider the notion "degrees of grammaticality."

It is a commonplace linguistic observation that the native speaker of a natural language does not judge novel utterances of his language as simply grammatical or ungrammatical, as polar opposites, but rather is aware of a dimension of grammaticality, along which there are not only perfectly grammatical and completely ungrammatical sentences, but more and less grammatical sentences. He is able to interpret these "semi-sentences" semantically until their degree of deviation from grammaticality passes a certain point. This capacity for discrimination of degrees of grammaticality and interpretation of deviant sentences is part of linguistic competence, and as such has been studied by several linguistic theorists. (Chomsky 1964a ; Ziff 1964; Katz 1964; Lakoff 1965).

Although among the references cited, only Lakoff has suggested it, it seems clear that one parameter of deviation from grammaticality is the number of obligatory transformations which have not been applied in a derivation. Since underlying structures are distinct from surface structures, to a degree yet to be determined, and it is obligatory transformations which convert them into surface structures, to the extent that the transformations fail to apply, just to that extent the resulting structures deviate from well-formed surface structures. But judgments of grammaticality are made entirely in terms of surface structures.

For an example, take the sentence

(230) The young boy collects stamps.

Among the transformations which apply in the derivation of (230) are two common obligatory rules of English, number agreement and adjective preposing. If number agreement fails to apply, we get the slightly deviant but understandable

(231) *The young boy collect stamps.

If number agreement applies, but adjective preposing does not, the result is

(232) *The boy young collects stamps.

(232) is also understandable, but more deviant than (231), which indicates that there is some weighting among transformations as to their obligatoriness. But if both transformations fail to apply, we have

(233) *The boy young collect stamps.

which is very nearly incomprehensible, clearly more ungrammatical than either (231) or (232).

Failure of optional transformations to apply, on the other hand, does not have this effect. In the sentence

(234) He brings the matter up at every meeting.

two of the transformations that have applied are number agreement (obligatory) and particle movement (optional). If particle movement had not applied, the sentence would have been

(235) He brings up the matter at every meeting.

which is equally as grammatical as (234). If particle movement applied but number agreement did not.

(236) *He bring the matter up at every meeting.

would result, while if neither applied, the final form would be

(237) *He bring up the matter at every meeting.

But (237) is no more deviant than (236).

Consider on this basis the comparative grammaticality of two possible surface sentences which could be derived from (197) if the -able rule did not apply to it. Assume that the subject of the embedded sentence is anyone.

(238) *Glass is able to be broken by anyone.

(239) *Glass is able for anyone to break it.

Neither sentence is grammatical. (239), however, is clearly less grammatical than (238). The difference between them is that in the derivation of (238) the passive transformation has applied to the embedded sentence before the appropriate computerizing transformations have applied to the whole structure, whereas in (239) it has not. This can be taken to mean that relative to the deep structure (197), just as to the deep structure (228), the passive transformation is obligatory.

If our initial assumption was wrong and the passive transformation is triggered by an element of the base, there is still a mechanism available for amnesties which is not essentially different in terms of the present discussion. A triggered transformation is still in a sense optional, since the triggering element is optionally chosen in the base. It could thus be the case that a deep structure violation can be amnestied by rendering obligatory the choice of the triggering element. The balance of the argument would proceed as before. Such an approach would lead to theoretical complications, since context-sensitive rules as presently defined apply only within the scope of a simple sentence, whereas the necessary restriction here would be from matrix to constituent sentence.

D7. Amnesties by derived structure

D7a. Discussion

Another alternative is available. One effect of the passive transformation on the embedded sentences in the structures (197) and (228) was to render their subjects identical to the subjects of their respective matrix sentences. Thus they satisfied the deep structure constraint which had been violated. Is it really the case that the passive transformation was obligatory in these cases, or was it rather that the deep structure violation had to be rectified? This is an empirical question, which can be answered only by investigating the effect of applying other transformations which could rectify the same violation in sentences similar in the relevant respects.

To satisfy an identity constraint on the initial noun phrase of a sentence, it is obviously necessary for a transformation to move some noun phrase into sentence-initial position. Besides the passive, there are at least two transformations of English which do this. Lakoff (1965) calls these IT-SUB and FLIP. We shall adopt these terms for our discussion.

D7b. IT-SUB

IT-SUB is a rule first discussed and motivated by Rosenbaum (1965). (Rosenbaum's name for the rule is Pronoun-replacement). The rule takes the subject noun phrase of an embedded complement sentence and substitutes it for the pronoun _it_ which is the head of the complex noun phrase dominating that sentence. IT-SUB applies in object complements after certain verbs, e.g. _believe_, _expect_, _know_, and in subject complements of other verbs, e.g. _happen_, _seem_, _appear_. The rule interacts in complex ways with other rules involved in complementation to relate synonymous sentences like the following:

(240) a. Jane believes that Hilda is rich.
b. Jane believes Hilda to be rich.

(241) a. Morton expects that the doctor will examine Max.
b. Morton expects the doctor to examine Max.

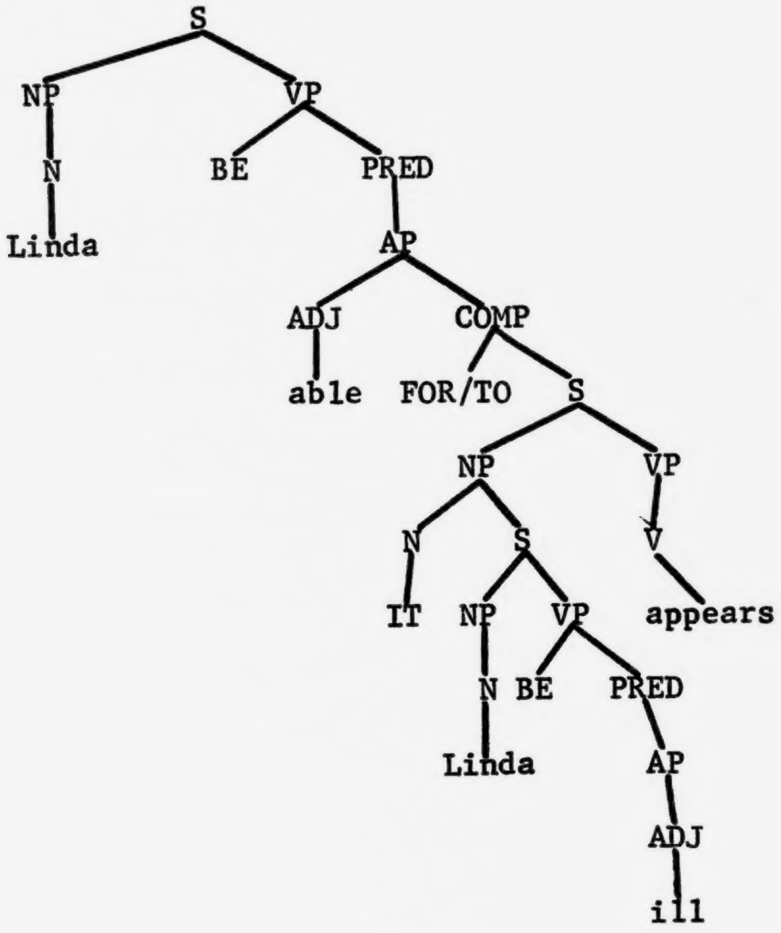
(242) a. It happens that Marsha likes mangoes.
b. Marsha happens to like mangoes.

(243) a. It appears that Linda is ill.
b. Linda appears to be ill.

The latter cases are the ones which interest us here, since they represent cases of noun phrases being introduced into sentence-initial position.

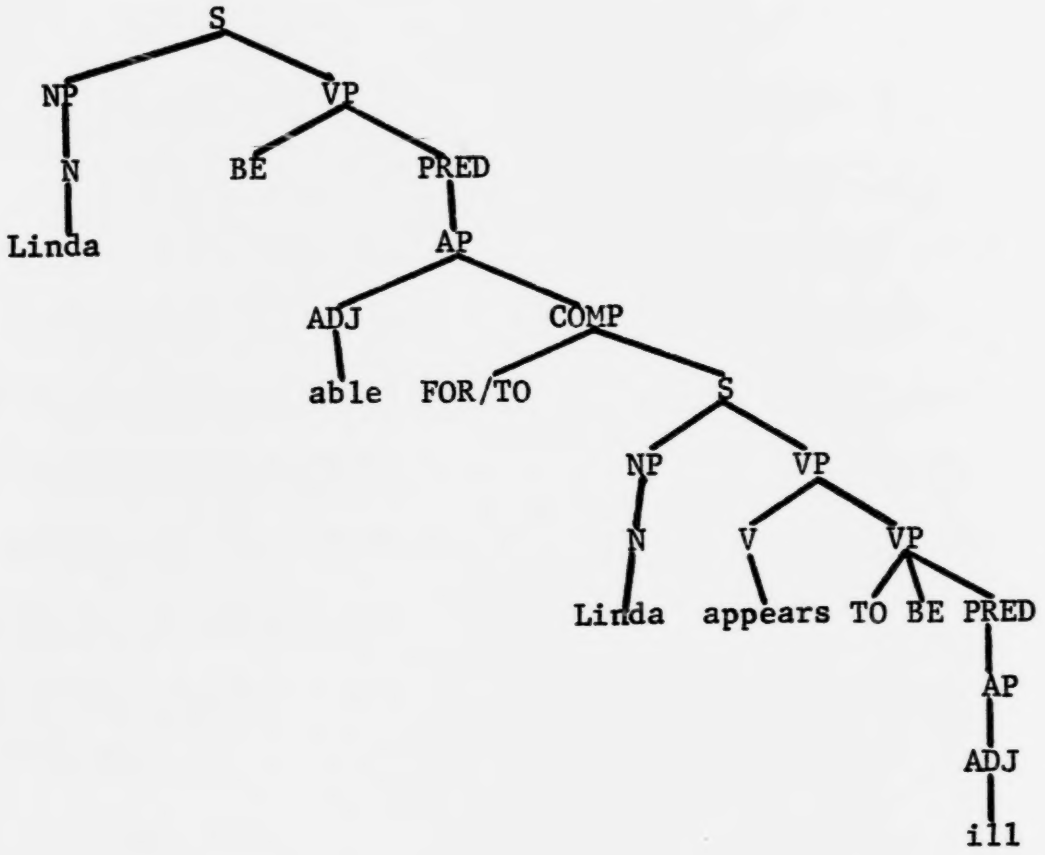
Assume now that the structure underlying (243 b) is embedded as the complement of *able*. The base tree will be as follows:

(244)


S
NP
VP
N
BE
PRED
Linda
AP
ADJ
COMP
able
FOR/TO
S
NP
VP
N
S
V
IT
NP
VP
appears
N
BE
PRED
Linda
AP
ADJ
ill

The subject of the embedded sentence which is the complement of *able* is not identical to the subject of *able*, which is *Linda*, but rather is the complex noun phrase *It S*. However, after the application of IT-SUB, the structure is the following:

(245)


S
NP
VP
N
BE
PRED
Linda
AP
ADJ
COMP
able
FOR/TO
S
NP
VP
N
V
VP
Linda
appears
TO
BE
PRED
AP
ADJ
ill

As a result of IT-SUB, Linda is now the subject of the complement as well as the subject of able. The appropriate complementizing transformations applied to this structure will yield.

(246) Linda is able to appear to be ill.

The development would have been the same throughout if tried had been substituted for is able:

(247) Linda tried to appear to be ill.

There are two questions to be asked about (246) and (247). First, are they grammatical? If they are not, that could indicate, among other things, that the results of the experiment were negative: that derived subjects in general can not satisfy identity constraints on an embedded subject, but rather that failure of subject identity in the complement of try, for example, renders the passive transformation obligatory. For the author (246) and (247) are grammatical. Informants seem rather evenly divided, however.

The second question is, what is the significance of the obvious meaning difference between the use of appear in (243a,b) and its use in (246) and (247)? In (243a,b) the phrase to me can be inserted after appears without changing the meaning; that is, the speaker is describing his own feelings about Linda's appearance. In (246) and (247) this is not the case; the speaker is describing an activity or pretense of Linda's, and it is understood that the speaker himself does not believe Linda to be ill. The addition of the phrase to me changes the meaning by limiting the extent of Linda's efforts or capabilities. This difference could indicate that different verbs appear are involved. If such is the case, the restrictions on their possibilities of occurence are very strange. None of the example sentences (243), (246) and (247) is ambiguous; the "pretense" reading is therefore excluded from the frame represented by (243a,b), and the straight reading from (246) and (247). This could be accounted for by postulating that the straight reading is /+stative/, the pretense reading /-stative/, since stative verbs have the same restrictions. Such a feature assignment would also correctly predict the pretense reading in other environments which exclude statives, such as imperatives--

(248) Appear to be ill!

and pseudo-cleft sentences--

(249) What Linda did was appear to be ill.

It would fail to explain, however, why the straight reading appears in progressives, which also typically exclude statives:

(250) Linda is appearing to be ill.[14]

The possibility that the appear (or seem, which behaves identically) which is involved in IT-SUB is different from the one which can be the complement of able or try seriously weakens the candidacy of IT-SUB as a transformation which can satisfy deep structure constraints by the introduction of noun phrases into appropriate positions.[15]

We shall consider next FLIP.

D7c. FLIP

The verbs benefit and profit can undergo a peculiar sort of subject-object interchange:

(257) a. The experience benefited Nelson.
      b. Nelson benefited from the experience.

(252) a. The exchange profited Marlene.
      b. Marlene profited from the exchange.

In each of the pairs, there is no meaning difference between a. and b. Lakoff proposed (1965) that such pairs are transformationally related, and in fact representative of a much wider pattern. Although no other verbs appear as verbs in both members of the pair, there are many cases of subject-object interchange with concomitant alternation between verb-cognate deverbal adjective. Thus for example:

(253) a. The situation amused Henrietta.

b. Henrietta was amused at the situation.

(254) a. The predicament annoyed Ralph.

b. Ralph was annoyed with the predicament.

A common intuitive reaction is that (253b) and (254b) are variants of the passive. This is easily demonstrated to be wrong, however. We observed earlier that passive and reflexive are mutually exclusive. Consider the following paradigms:

(255) a. Henrietta was amused by the situation.

b. *Henrietta was amused by herself.

c. Henrietta was amused at herself.

(256) a. Ralph was annoyed by the predicament.

b. *Ralph was annoyed by himself.

c. Ralph was annoyed with himself.

(255a) and (256a) show that true passives are possible with the same verbs. (255b) and (256b) show that the passive-reflexive exclusion applies in these cases. (255c) and(256c), finally, show that reflexives are not excluded from the "variant" forms, thus arguing that they are not passives at all.[16]

Next consider the facts of co-occurrence with instrumental adverbials.

(257) Jerry amused Irma with a harmonica solo.

can passivize to

(258) Irma was amused by Jerry with a harmonica solo.

but never to

(259) *Irma was amused at Jerry with a harmonica solo.

The ungrammaticality of (259) is conclusive evidence that (253b) and (254b) are not free variants of passives.

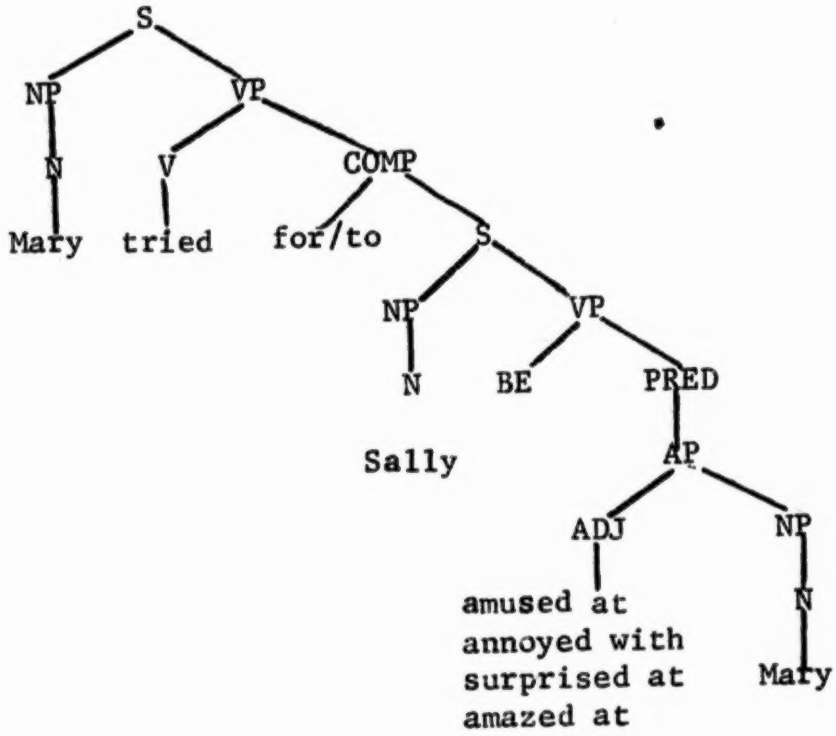
The effect of FLIP which concerns us here is that like PASSIVE and IT-SUB it introduces a noun phrase into sentence-initial position. It may therefore be possible for it to introduce a noun phrase which satisfies an identity constraint which has been violated in the deep structure. Consider the following sentence schemata:

(260) Mary tried to amuse (annoy, surprise, amaze) Sally.

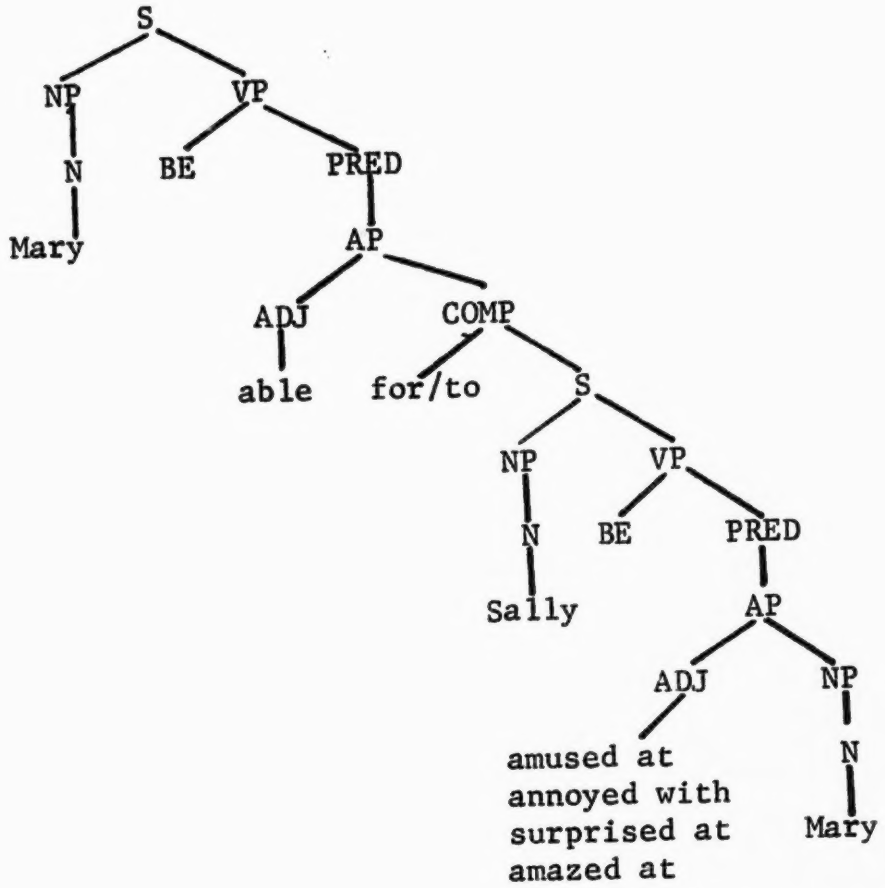
(261) Mary was able to amuse (annoy, surprise, amaze) Sally.

If the adjectival form with human subject is underlying, as Lakoff has claimed (ibid.), the deep structures of these sentences should be as follows:

(262)

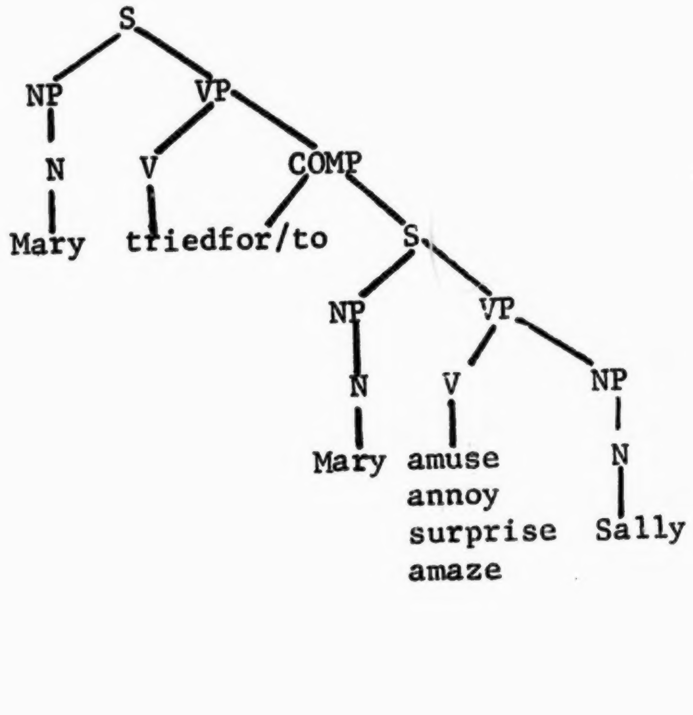

S
NP
VP
N
V
COMP
Mary
tried
for/to
S
NP
VP
N
BE
PRED
Sally
AP
ADJ
NP
amused at
annoyed with
surprised at
amazed at
N
Mary

(263)

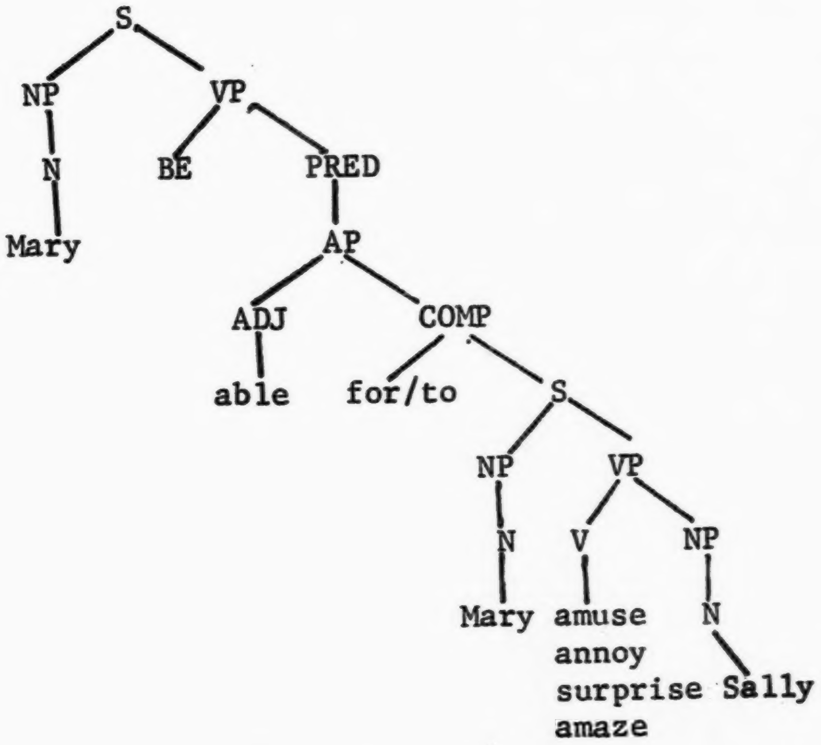

S
NP
VP
N
BE
PRED
Mary
AP
ADJ
COMP
able
for/to
S
NP
VP
N
BE
PRED
Sally
AP
ADJ
NP
amused at
annoyed with
surprised at
amazed at
N
Mary

These structures violate the identity constraints we have discussed. After FLIP applies, however, the structures are as follows:

(264)


S
NP
VP
N
V
COMP
Mary
triedfor/to
S
NP
VP
N
V
NP
Mary
amuse
annoy
surprise
amaze
N
Sally

(265)



How these structures are derived, it is not to our purpose to inquire here. If FLIP exists, and operates in the direction specified, these are the structures it must produce. We see that they satisfy the identity constraint, and that the sentences they underlie, (260) and (261), are grammatical. Also there are no problems of meaning similar to those which arose with IT-SUB. It therefore begins to be justifiable to conclude that FLIP, as well as PASSIVE, can remedy deep structure identity violations.

The conclusion is strengthened by observing that even if the postulated direction of operation is wrong, i.e., if the forms with the verbal rather than adjectival alternant of the above examples are underlying, the derived form can satisfy identity restrictions on try and able complements. This is clearest with benefit and profit:

(266) Nelson was able (tried) to benefit from the experience.

(267) Marlene was able (tried) to profit from the exchange.

The sentences representing the structures which must underlie the complements of (266) and (267) are (251b) and (252b) respectively. If these forms are derived rather than underlying, then FLIP has satisfied the identity restriction. There are also examples with the adjective alternants of the verbs in (260) and (261):

(268) Henrietta tried (not) to be amused at the situation.

(269) Ralph tried not to be annoyed with the predicament.

If (253a) and (254a) are underlying forms, then FLIP must apply to them in order for the restrictions on the _try_-complements of (268) and (269) to be fulfilled. (Why in (269) the negative should be required for grammaticality is a mystery.)

The deeper question about all of this discussion is whether FLIP exists at all. This analyzes into three subquestions: are sentence pairs like (251) and (252), organized around _benefit_ and _profit_, transformationally related? Are the pairs organized around verb-cognate adjective pairs transformationally related? If yes in both cases, is it the same transformation? I have arranged these questions in order of decreasing plausibility of an affirmative answer. It seems likely that the _benefit_-_profit_ inversions are transformational. Only one member of each mutually inverted sentence pair can serve as the complement of _able_ or _try_, however, since those nouns such as _experience_, _exchange_ which are subjects of _benefit_ and _profit_ on the opposite inversion can never be subjects of _able_ or _try_, hence cannot be identical to the subject of _able_ or _try_. Thus only one of the two possible directions FLIP could work can produce grammatical examples (e.g., (266) and (267)), and that the slightly less likely direction. Both directions that FLIP could work on verb-adjective sentence pairs can satisfy identity restrictions on complements, as shown in examples (260), (261), (268), and (269). In these cases, however, the evidence of transformational relatedness is less clear.

In the absence of further understanding of the FLIP transformation, its value in the discussion of amnesties is necessarily limited. The following conjunction of conditional statements is about the strongest assertion that can be made at this time: _if_ sentence pairs around _benefit_ and _profit_ are related by a transformation, call it FLIP-1, and _if_ the application of FLIP-1 is such that the sentences with human subjects are derived, the ones with abstract subjects underlying, and _if_ the sentence pairs around verb-adjective pairs are related by a transformation, call it FLIP-2, and _if_ FLIP-1 and FLIP-2 are different rules, the contention that deep structure constraints of some sorts may be satisfied by derived structures, where the source of the derivation is not crucial, receives the greatest possible support. If FLIP-2 exists, then regardless of the status of FLIP-1, the contention receives some support. If FLIP-1 exists and operates in the right direction, then regardless of FLIP-2, the contention receives some support. If FLIP-2 does not exist and FLIP-1 does not exist or only operates in the wrong direction, the contention receives no support; on the contrary, the alternative contention that a specific transformation is rendered obligatory by the deep structure violations in question is supported.

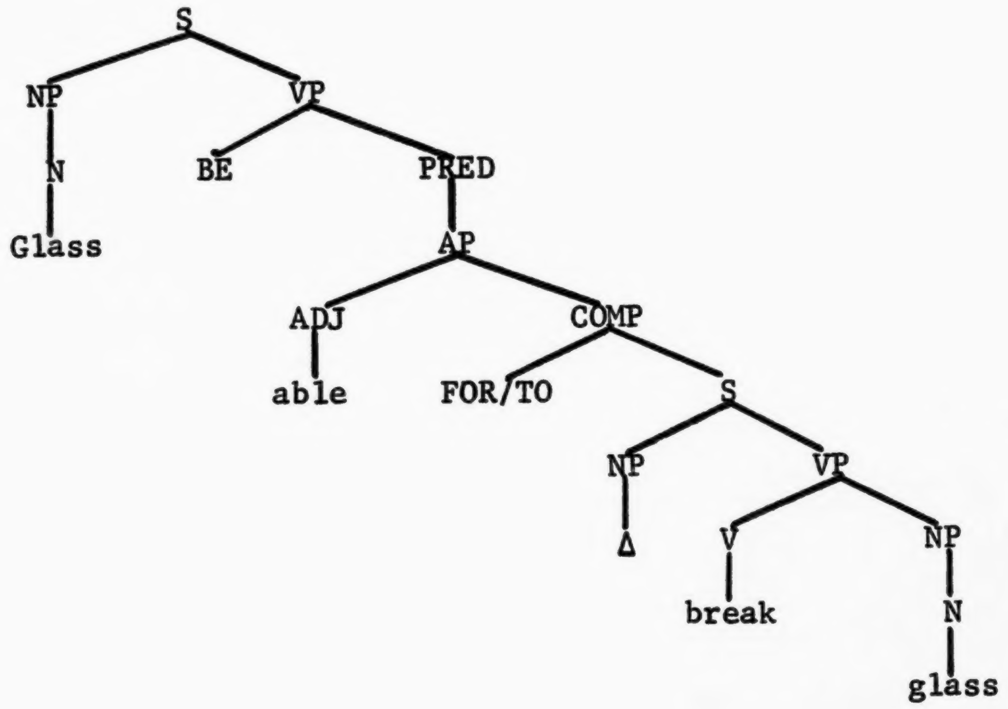
Notice the relevance of this discussion to our earlier claim that the passive transformation is involved in -able derivation. If the structure postulated for (197) is correct, and if the deep structure violations in the structure render the passive transformation obligatory, that is, amnesties are not granted by derived structures, then the grammaticality of sentence (197) is evidence that PASSIVE did in fact apply in its derivation. This is a rather subtle point and deserves some elucidation. It is predicated on the following assumptions: (a) the able of -able derivatives is the same able as the freely occurring adjective; (b) the particular violation of able occurrence in (197) is the failure of identity between the subject noun phrase of the matrix sentence and the subject noun phrase of the complement, not its failure to appear as the suffix of an -able adjective; (c) deep structure violations must be rectified if a grammatical sentence is to result. Any of these assumptions may be wrong, and of course the argument depends entirely on the independently motivated correctness of the structure (197); to that extent, it is weaker than the other arguments for the passive element in -able derivatives. It converges with those arguments in a satisfying way, however.

The discussion of amnesties must remain inconclusive because of the complexity of the problem and the vagueness of the pertinent data. We have tried to show that the problem is not unique to our handling of -able, but that such mechanisms must exist in grammatical theory in any case. We have examined some of the ways such mechanisms might work and the arguments for and against the more promising prospects. A fruitful field for research is open here.

D8. Another problem

A further possible violation of the selectional restrictions on able in (197) is its predication of nonhuman subjects, like glass.

(197)


S
NP
VP
N
BE
PRED
Glass
AP
ADJ
COMP
able
FOR/TO
S
NP
VP
Δ
V
NP
break
N
glass

Able is only fully natural with human subjects, as in (266) and (267) or in

(270) Rowena is able to speak five languages.

With non-human subject nouns the able form seems much more stilted and unnatural:

(271) ?This car is able to go 120 miles an hour.

(272) ?Glass is able to filter out ultra-violet light.

With some complements it is impossible:

(273) *Glass is able to break.

This is not a semantic problem, since

(274) Glass can break.

is acceptable.[17]

Individuals vary in the degree of acceptability they assign to sentences like (271) and (272). Because of the doubt as to their grammaticality, and because of the subject identity restriction on able complements already discussed, a plausible intuitive analysis of (197) would have the PRO-Noun Phrase or the anyone of the embedded sentence as the subject of the matrix sentence as well. Then the processes of -able derivation would be optional; if they did not apply, the structure of (the modified) (197) would end up as

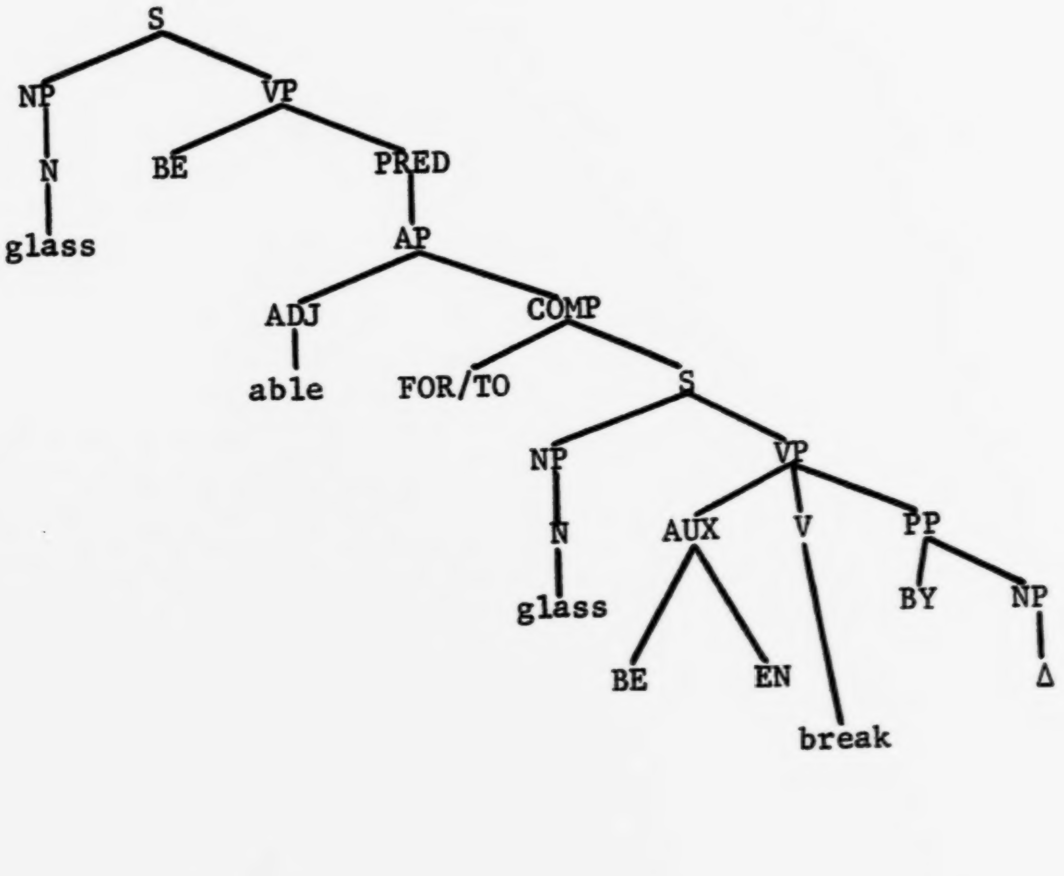
(275) Anyone can break glass.

However, Chomsky has argued (personal communication), I think correctly, that (197) and (275) are not paraphrases. They differ basically in that (197) describes a quality of glass, while (275) asserts something about people (or objects, if anything is substituted for anyone). Put another way, (197) would be true and (275) vacuous if there were no people, while both would be vacuous if there were no glass. These semantic considerations force the analysis as given under (197), with able plus its complement predicated of the eventual subject of the -able derivative, and concomitantly raise the associated problems we have been discussing. It is worth noting, however, that other problems are reduced; although the general shape of the structure under (197) was dictated by semantic factors, the problem of derived constituent structure for the -able rule is considerably simpler for that structure than for the alternative with the subject of the matrix sentence being identical to the subject of the embedded sentence, rather than to its object. Moreover, I have been trying to indicate in the discussion that the problems being considered, while real, are not insurmountable, and that efforts toward their solution may lead to some interesting insights into language.

D9. Derivation of *-able* forms

We are now in a position to trace the derivation of the *-able* form from the deep structure (197). On the first cycle, the passive transformation applies to the embedded sentence. The result is

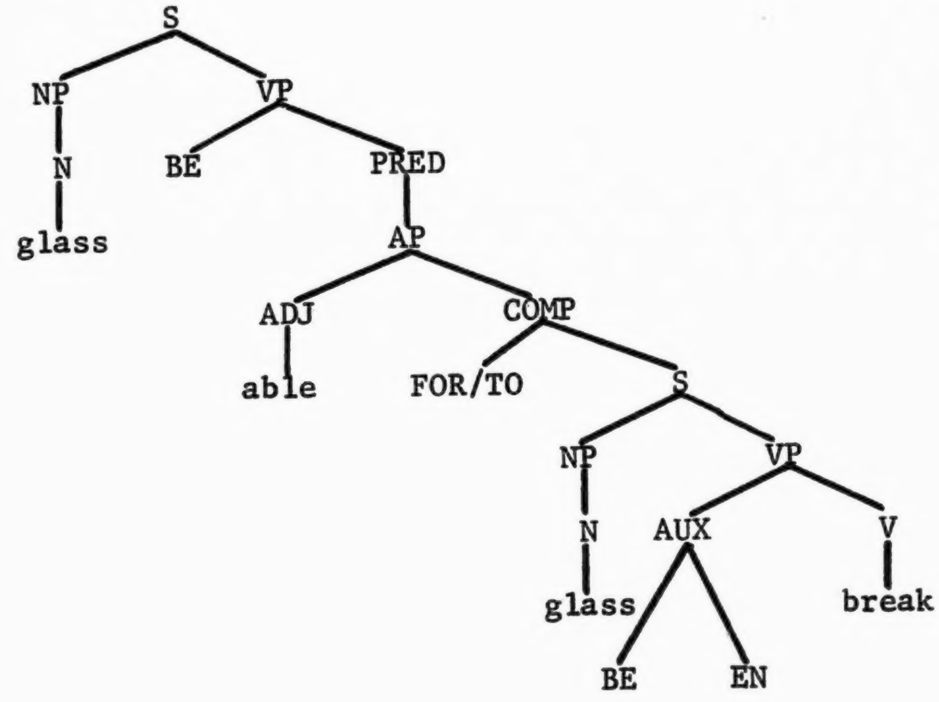
(276)


S
NP
VP
N
BE
PRED
glass
AP
ADJ
COMP
able
FOR/TO
S
NP
VP
N
AUX
V
PP
glass
BY
NP
BE
EN
Δ
break

There is a slight amount of artificiality in this structure in the _ex nihilo_ introduction of the node AUX. This is not intended to make any claims about the passive transformation, but is simply the smallest adjustment possible to accommodate all of the basic elements of the derived structure. A more detailed picture of the structure of (197) would have included an AUX node in the embedded sentence, dominating at least TENSE, in the same position relative to the verb of the embedded sentence.

The next transformation to apply is agent deletion, also in the embedded sentence. Agent deletion applies to the structure shown, but would not apply if the object of the agent phrase were _anyone_, _any child_, etc., instead of the designated representative of the category Noun Phrase. This situation was discussed above. The structure resulting from agent deletion is the following:

(277)



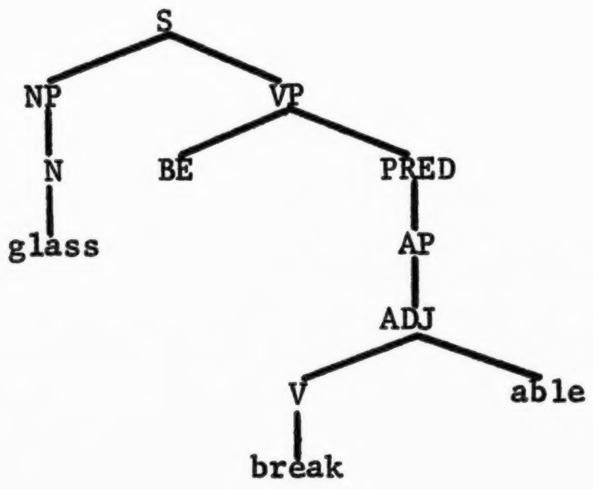
No other relevant transformations apply on the first cycle. This is the structure to which the ABLE transformation applies, on the second cycle. We offer the following formulation of ABLE:

X	NP	BE	ABLE	FOR/TO	NP	BE	EN	V	Y	
1	2	3	4	5	6	7	8	9	10	⇒
1	2	3	9+4	∅	∅	∅	∅	∅	10	

Where: 2 = 6

The application of ABLE to (277) yields the following structure:

(278)



With appropriate details of tense, number, etc. filled in, this is proposed as the correct surface structure of sentence (197).

The crucial operation of ABLE is the movement of the verb, segment 9, to the left of *able*, segment 4. The elementary transformation involved is left sister adjunction, symbolized '+'. It will be noticed that the adjunction is to the specified formative *able*, rather than to the adjective node that dominates it. The *-able* derivative is thus automatically assigned adjective constituency, since

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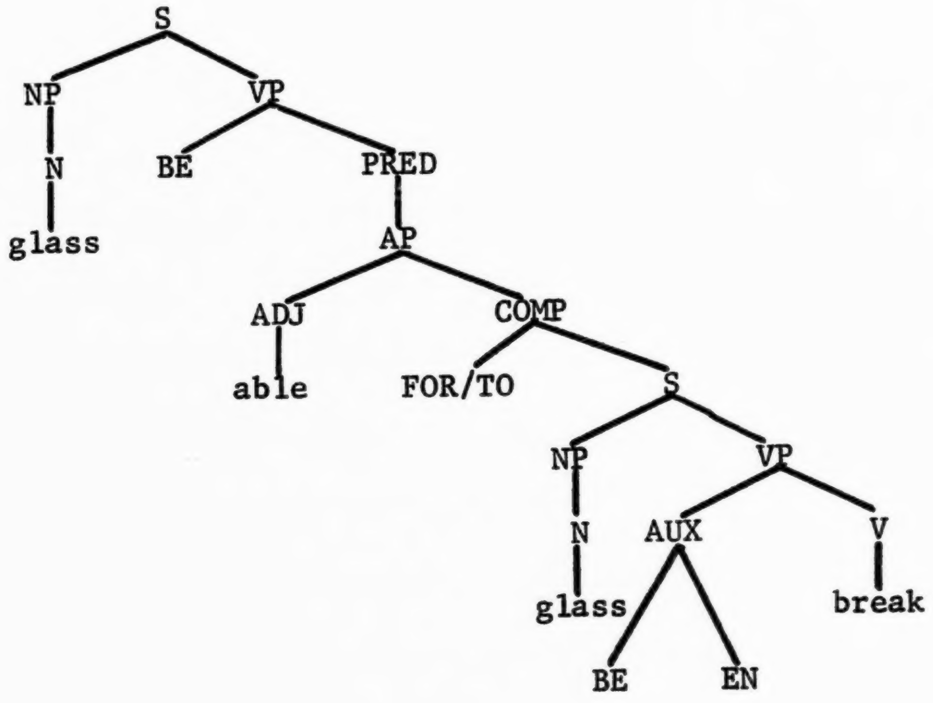

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1	2	3	9+4	Ø	Ø	Ø	Ø	Ø	10	

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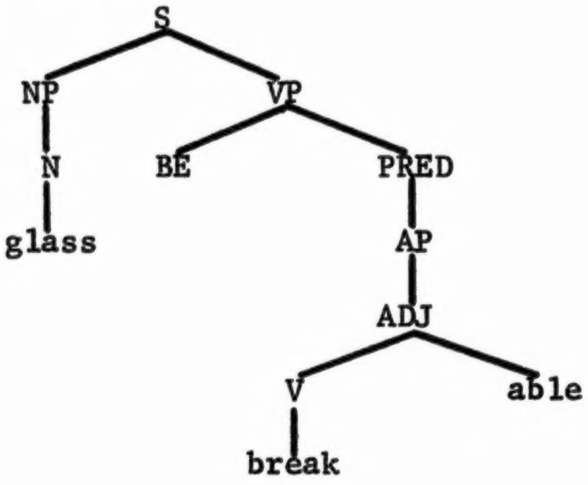
(278)



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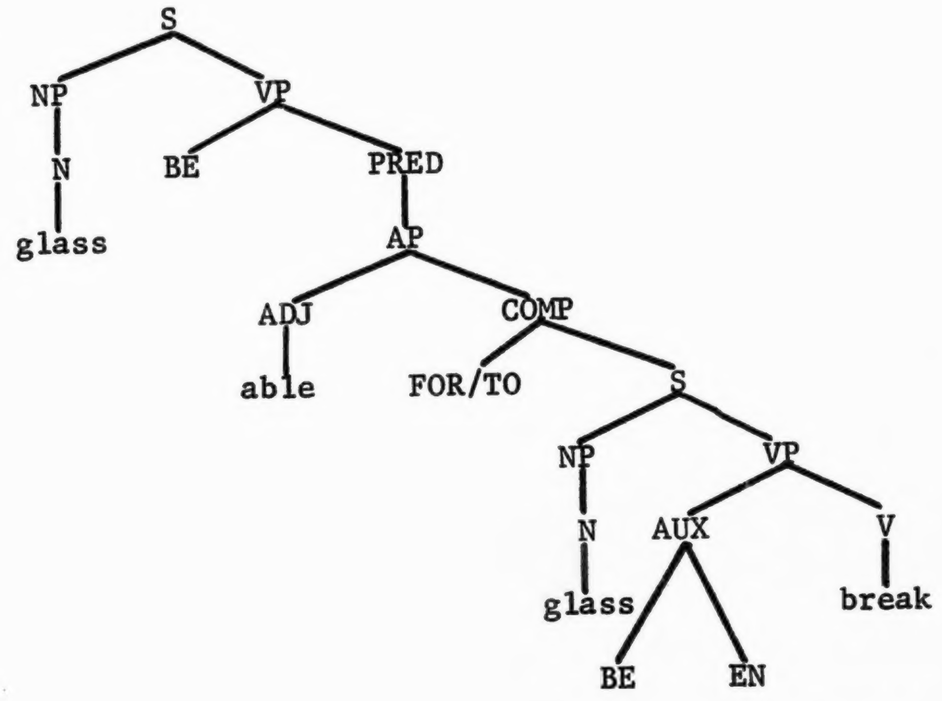

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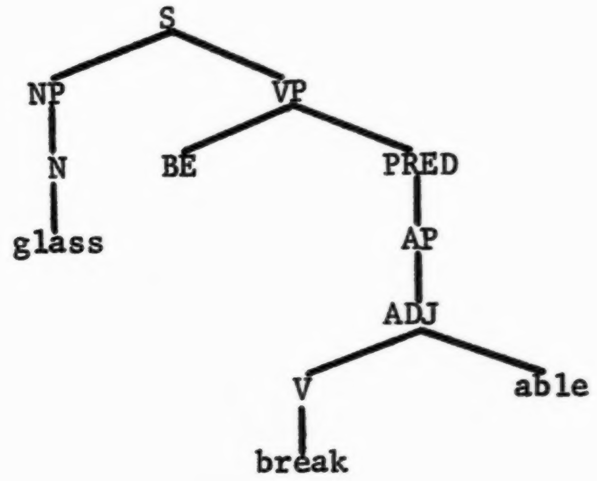
1	2	3	4	5	6	7	8	9	10	⇒
1	2	3	9+4	∅	∅	∅	∅	∅	10	

Where: 2 = 6

The application of ABLE to (277) yields the following structure:

(278)



With appropriate details of tense, number, etc. filled in, this is proposed as the correct surface structure of sentence (197).

The crucial operation of ABLE is the movement of the verb, segment 9, to the left of able, segment 4. The elementary transformation involved is left sister adjunction, symbolized '+'. It will be noticed that the adjunction is to the specified formative able, rather than to the adjective node that dominates it. The -able derivative is thus automatically assigned adjective constituency, since the verb and the _able_ to which it is adjoined are jointly immediately dominated by an adjective node. The derived constituency problem of SELFING does not arise. Notice further that the _able_ loses its adjective constituency when it becomes a suffix, although the stem retains its verb constituency, since segment 9, which is moved into stem position, is V, not the node dominated by V. This derived structure is phonologically correct according to the rules given in Chomsky and Halle (forthcoming). The reduction of the _a_ in _able_ to schwa in _-able_ derivatives is occasioned by the fact that it never receives stress, and its non-reception of stress is predicted by its being a member of a major category in the structure to which the stress rules apply. It is necessary to know that the stem is a verb to assign the proper stress in words like _exportable_, _tormentable_. The derived structure also has syntactic implications, since the information that the stem of _-able_ derivatives is a verb is available to subsequent syntactic rules, while the constituency of _-able_ is not. I know of no syntactic evidence which bears on this question.

It is worth mentioning that the given formulation of ABLE, which produces structures which are correct on independently motivated grounds, is the simplest possible within the present framework of transformation theory. If it had been necessary to retain the information that _able_ is an adjective, or to move the verb stem without moving the verb node dominating it, the rule would have had to be complicated to allow this.

The most troublesome thing about the sequence of transformations leading to (278) is the introduction and subsequent deletion of all of the morphological material associated with the passive. Similarly, although we have shown it as part of the base structure for purposes of exposition, Rosenbaum argues (1965) that the complementizer *for/to*, which is deleted in ABLE, is transformationally introduced. The possibility should not be ignored that a better grammatical theory would "spell out" transformationally introduced morphological detail at a fairly late stage in the grammar, after all those transformations which introduce or delete specific morphemes have already applied. Then in the example sentence, for instance, the passive transformation would merely invert the subject and object noun phrases and place a participial feature on the verb. If nothing further happened, the required *be* and *by* would be added by the late fill-in rules; but since they would not be present at the time of its application, ABLE would not need to mention them in its structural description. The application of ABLE would make the later fill-in rules for *be* and *by* inapplicable. All of this is of course mere speculation in the absence of carefully worked-out examples.

How productive is this rule ABLE? Lakoff (1965) calls it a *minor* rule, a technical term meaning roughly that of the verbs which meet all of the regularly specifiable constraints on *-able* derivation, fewer than half can serve as *-able* stems. As examples of verbs which cannot, he mentions *kill*, *shoot*, *hit*, *bend*, *light* (a match), *swing* (a bat), *spot* (a lighthouse). For the author and every informant he has queried, bendable is a perfectly normal form. Swingable, hittable, and spottable are in the category of possible but nonexistent forms. But there is definitely something odd about killable, shootable, and lightable. It is instructive to consider these forms a little more closely.

D10. Generic constraints on -able derivation

Earlier we considered the role of the notion generic in self-ing derivation, and claimed that it is of considerable importance in adjective derivation in general. Consider now its status with respect to -able derivation. To say

(279) My car is repairable.

is not to say

(280) My car can be under repair.

To (281) one could appropriately add such a phrase as "next week while I'm away", but this would be meaningless if added to (279), since (279) describes a generic or "timeless" quality of the car. Another example is

(281) This hat is wearable by anyone.

Consider the semantically similar

(282) Anyone can wear this hat.

Adding a subordinate clause to (282) yields

(283) Anyone can wear this hat until he decides to take it off.

But adding the same subordinate clause to (281) gives nonsense:

(284) *This hat is wearable by anyone until he decides to take it off.

That is to say, one cannot set a time limit on wearability, unless it is by indicating the point at which the quality of wearability itself no longer exists, as in

(285) This hat was wearable by anyone until a steamroller ran over it.

Sentence (282) is actually ambiguous between generic and non-generic readings. On the generic reading, one feels that the speaker is pointing at the hat and addressing a single hearer; on the non-generic reading, the feeling is that the speaker is addressing a crowd, advising them that any of their number can wear the hat, which one pictures as being held loosely by the speaker's side. The generic reading describes a quality of the hat, the non-generic reading does not. But only the generic reading is a suitable paraphrase of (281). All of this suggests that the generic restriction we observed in self-ing is also crucially involved in -able derivation. A logical locus for its application, if it applies to sentences as we suggested earlier, is on the embedded sentence in the deep structure of -able derivatives, the sentence containing the verb which becomes the stem. This is logical since subordinate clauses like the one in (282) and (284), if they were to appear in the deep structure of an -able form, would be attached to the embedded sentence; it is the generic restriction on that sentence which excludes them to prevent such sentences as (284).

Recall now the paradigm for non-stative transitive verbs which indicated the restriction that they cannot appear in the "generic tense" if their subject and object noun phrases are both non-generic:

(66) Students read books.

(67) Students read Moby Dick.

(68) John reads books.

(69) *John reads Moby Dick.

Consider the same paradigm with shoot, kill, and light substituted for read, people for students, and the selectionally appropriate objects for books and Moby Dick:

(286) People shoot birds.

(287) *People shoot John.

(288) John shoots birds.

(289) *John shoots Bill.

(290) People kill pests.

(291) *People kill John.

(292) This little boy kills pests.

(293) *This little boy kills Marvin. (not in sense of "amuses")

(294) People light matches.

(295) *People light this match.

(296) Joe lights matches.

(297) *Joe lights this match.

The paradigms are more restricted: the verbs may not appear in the "generic tense" if their objects are non-generic. These verbs belong to a class of what might be called "once-for-all" verbs. The semantic sense behind them is that once a specific object has received the specified action, it cannot do so again. Factually this is incorrect in the case of shoot, but the verb behaves the same as the others, as the paradigm shows.

But now we have an explanation for the exclusion of Lakoff's ungrammatical example sentences

(298) *John is killable.

(299) *John is shootable.

(300) *This match is lightable.

To derive these sentences, it would be necessary for us to postulate as the embedded sentences of their base structures sentences identical in the relevant respects to the ungrammatical (287), (291), and (295).

This is not the whole story; if it were, one would predict as fully grammatical sentences like

(301) ?Birds are shootable.

(302) ?Pests are killable.

(303) ?Matches are lightable.

While these sentences seem somewhat better than (298)-(300), they still seem defective. Perhaps some explanation could be found to the effect that a verb whose -able derivative would form a defective paradigm is excluded from derivation altogether. The correlation between the exclusion of these verbs and the generic restriction, however, seems reasonably clear.

This is not to say that Lakoff was wrong in calling -able a minor rule. The major-minor rule distinction separates occurring from non-occurring forms, not possible from impossible forms, and many possible -able forms are non-occurring (see Appendix II). The lesson to be drawn, rather, is that one does well to avoid the temptation simply to distinguish forms which do from forms which don't, with a rule feature, and go on to the next problem. Prolonging the search can often uncover hidden regularities.

D11. The exclusion of self-from -able derivatives

Earlier we observed the ungrammaticality of sentences like

(124) *This car is self-startable.

If the deep structure postulated for (197) ("Glass is breakable") is correct, we can now trace one possible way of excluding (124) on a principled basis.

We argued above that there are two morphemes self, one lexical and one reflexive, and that the only source for the reflexive self is the reflexive transformation. We shall assume without argument that the self appearing in (124) is the reflexive one. It therefore follows that the reflexive trasnformation must apply at some point in the derivation of (124). No reflexization is possible in the matrix sentence of (197), since able can stand alone, as in

(304) Smith is quite able.

or can take an infinitival complement, as in the various examples we have already examined, but cannot take a direct object. This is not because it is an adjective; observe

(305) Allen is proud (fond) of Peter.

But

(306) *Allen is able of (to? for? with?) Peter.

When the direct object is identical to the subject in (305), the reflexive transformation operates normally:

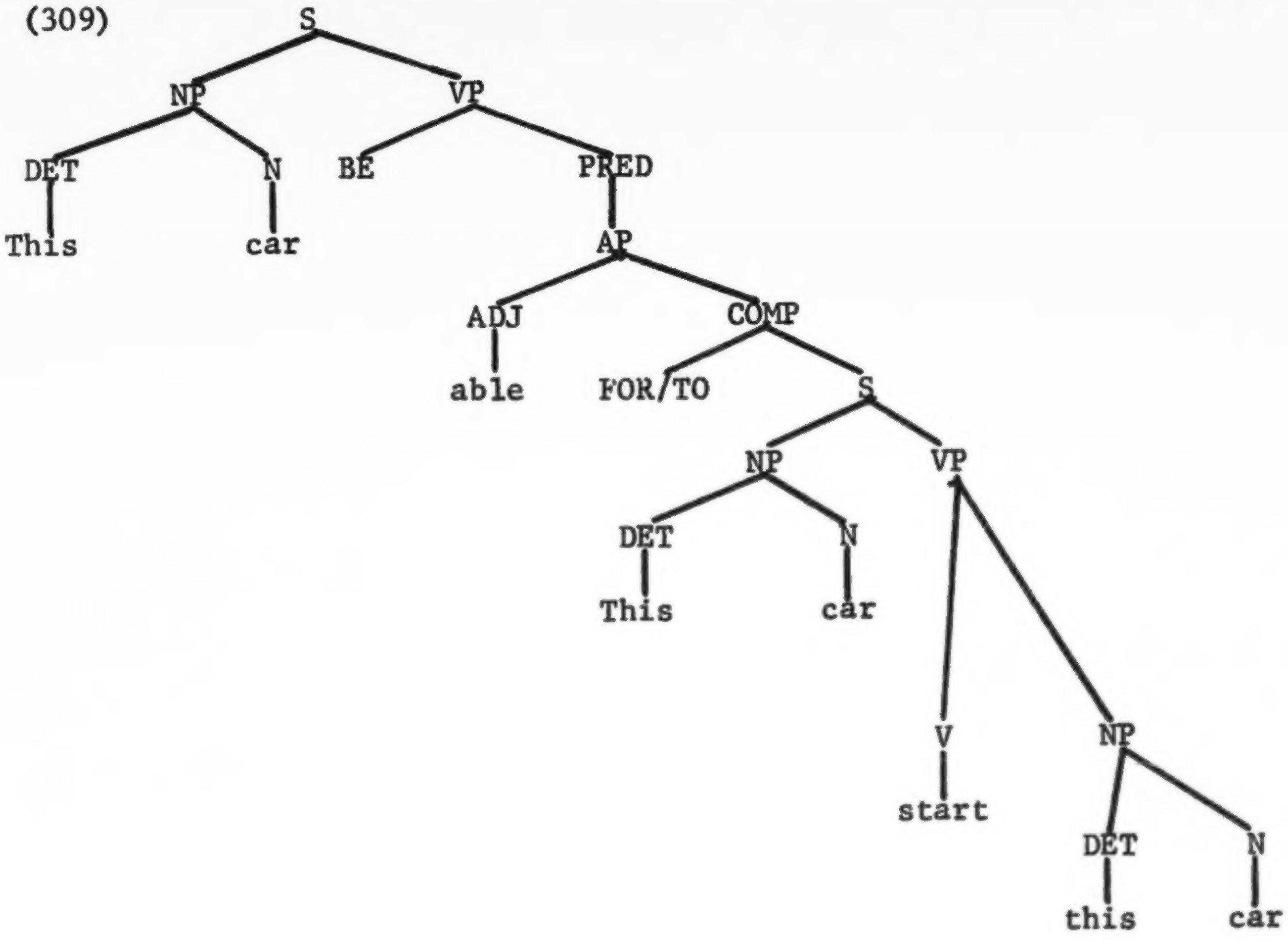
(307) Allen is proud (fond) of himself.

But since (306) is impossible, so is

(308) *Allen is able of himself.

We must therefore look to the embedded sentence as the locus of reflexivization. Here (197) ceases to be a good example, since *break* is an irreflexive verb in any normal context. Let's consider instead the base structure analogous to (197) which would underlie (124):

(309)


S
NP
VP
DET
N
BE
PRED
This
car
AP
ADJ
COMP
able
FOR/TO
S
NP
VP
DET
N
This
car
V
NP
start
DET
N
this
car

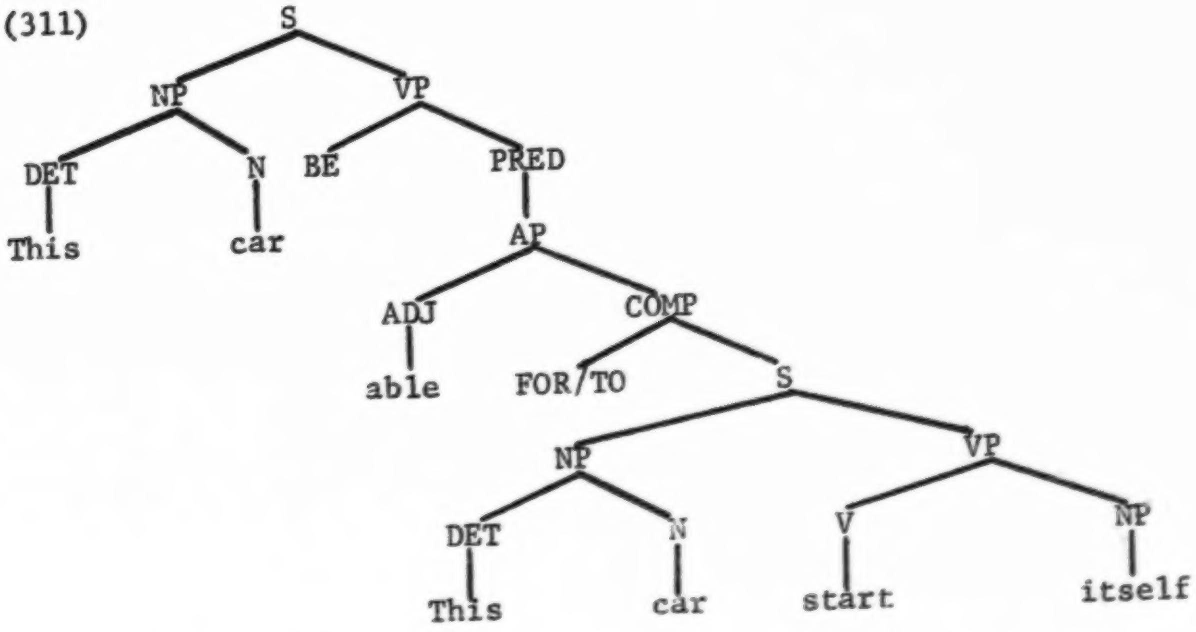
This structure differs from the structure which would be necessary to derive

(310) This car is startable.

in the subject noun phrase of the embedded sentence. On our earlier analysis the base structure of (310) would have the designated representative of the category Noun Phrase as the subject of the embedded sentence. The given structure has instead the noun phrase "this car", identical to the object noun phrase of the embedded sentence. We have already determined that the source of self in (124) must be the application of the reflexive transformation to the embedded sentence. Subject-object identity is the only way to insure that this happens.

The co-referentiality condition alluded to earlier, whatever its exact nature may be, blocks the application of PASSIVE to the embedded sentence. REFLEXIVE applies as planned, yielding

(311)


S
NP
VP
DET
N
BE
PRED
This
car
AP
ADJ
COMP
able
FOR/TO
S
NP
VP
DET
N
V
NP
This
car
start
itself

This structure does not meet the structural description of ABLE, because PASSIVE has not applied to the embedded sentence. It does, however, meet the structural description of the transformation which deletes from complements noun phrases identical to noun phrases in the matrix sentences dominating them. That transformation applies to yield the surface structure of the sentence

(312) This car is able to start itself.

Implicit in this analysis is the claim that (124), if it existed, would mean the same as (312). (124) is ungrammatical to such an extent, or perhaps in such a way, that an exact interpretation of it is not possible. The claim could therefore be open to dispute. However, I have chosen what seems to me the most reasonable interpretation.

This concludes our analysis of *-able* forms. We have attempted to show that the regularities among them are best captured by the rule ABLE, and that that rule must be (a) transformational and (b) in the transformational component. This is a somewhat more interesting result than for SELFING, since *-able* derivatives do not contain internal word boundaries. This is seen phonologically from the stress shift in such derivatives as *analyzable*, *realizable*, in which the stem verb in isolation is stressed on the first syllable, but as an *-able* stem on the third syllable. This shift is predictable and regular if it is assumed that there is no word boundary before the *-able*.[18] Moreover, there are a variety of vagaries in the semantic relationship between *-able* forms and their postulated deep structures (see Appendix II).

-able derivatives are paragons of regularity and productivity, however, compared to nominalizations from adjectives with the suffix _-ity_, to which we now turn.

E. Nominalized adjectives in -ity

E1. Discussion

We will by definition limit our domain of inquiry to nominalized adjectives. We thereby exclude forms with no reconstructible free stem, like *charity*, *quality*; forms where the apparent stem, though free, has no intuitively plausible connection with the *-ity* form, e.g. *dimity*, one reading of *gravity*; and forms whose stems are not adjectives, e.g., *deformity*, *celebrity*, *community*. A few forms have apparent stems which are neither adjectives nor synchronically connected: *cupidity*, *authority*, *university*. This limitation is not to deny that any of these groups, except the *dimity* class, may have some relevance to the general question of *-ity* derivation.

By far the vast majority of the words in the *Reverse English Word List* (Brown 1963) which end in *-ity* survive these exclusions. Where reconstruction of a plausible free stem is possible, we shall assume no constraints on it. Thus for example *precocity* is related to *precocious*, *vivacity* to *vivacious*, but *simplicity* to *simple* and *felicity* to *felicitous*. *Jocosity* is related to *jocose*, *verbosity* to *verbose*, but *viscosity* to *viscous*. A full description of *-ity* derivation would have to account for these variations, but since our present purpose is to examine restrictions on productivity and semantic irregularities, we wish to introduce no artificial limitations.

The one overwhelming regularity in *-ity* derivation, which has been noticed by every student of the subject (e.g. Sweet 1960, p. 489; Jespersen

1961, Vol.VI, pp. 448-450; Marchand pp. 250-253), is that it is limited to stems of Romance origin. This is a necessary, not a sufficient condition, as we shall see in our discussion of limitations on productivity; but among the few counterexamples mentioned in Jespersen (*ibid*.) and Marchand (*ibid*.), only *oddity* has any currency today. Another possible counterexample, not mentioned by Jespersen or Marchand, is *jollity*, from *jolly*, whose etymology, however, is uncertain (Skeat 1953, p. 316).

E2. Limitations on productivity

Beyond this there are no obvious phonological or syntactic constraints determining possible stems for *-ity* derivation. Nevertheless, many forms which one might predict on the basis of analogous paradigms do not exist. Thus for example one finds *specify*, *specific*, *specificity*, *terrify*, *terrific*, but **terrificity*; *insane*, *insanity*, *arcane*, but **arcanity*; *limpid*, *limpidity*, *sordid*, *sordidity*, *splendid*, but **splendidity*; *grammatical*, *grammaticality*, *practical*, *practicality*, but *political*, **politicality*, *cynical*, **cynicality*; *curious*, *curiosity*, *generous*, *generosity*, but *dangerous*, **dangerosity*; *polar*, *polarity*, *solar*, **solarity*; *receive*, *receptive*, *receptivity*, *perceive*, *perceptive*, **perceptivity*; *scarce*, *scarcity*, *fierce*, **fiercity*.

Even clearer cases of limited productivity are those in which of two homonymous adjectives, only one takes the *-ity* suffix. Examples are *partial* and *civil*:

(313) a. Joe is partial to cream cheese.

b. Joe's partiality to cream cheese . . .

(314) a. His success was partial.

b. *The partiality of his success . . .

(315) a. Alice is civil to Bill.

b. Alice's civility to Bill . . .

(316) a. Harry brought a civil suit.

b. *The civility of Harry's suit . . .

There are similar cases in which, although the stems are not themselves homonymous, the alternants they take in _-ity_ stem position are:

(317) a. Alex is a virtuoso on the violin.

b. Alex's virtuosity on the violin . . .

(318) a. Clara was virtuous in Paris.

b. *Clara's virtuosity in Paris . . . (as derivative of a.)

(319) a. This device is ingenious.

b. The ingenuity of this device . . .

(320) a. Little Samantha was ingenuous.

b. *Little Samantha's ingenuity . . . (as derivative of a.)

Virtuoso is of course a noun, so virtuosity is excluded from further consideration here.

The only example I know of a homonymous _-ity_ form is _humanity_, derivative of both _human_ and _humane_. Only on the latter derivation is it regular.

The question of impossibility or simple nonoccurrence of the starred forms is premature. Detailed study of clear cases may yield patternings which exclude some or all of them on regular grounds; those so excluded would be impossible.

E3. Irregularities

More interesting and difficult than the problem of limited productivity is the question of unpredictable semantic and syntactic characteristics in derivative forms. The neutral or predictable interpretation of a nominalized adjective is as an abstract noun which is three ways ambiguous. If the *-ity* stem adjective is X, the readings of the nominalization can be somewhat inadequately paraphrased as "the state of being X," "the extent to which something is X," and "the characteristic quality of those things which are X." Thus taking *simplicity* as the nominalization of *simple* we see the "state" reading in

(321) The simplicity of his proposal was all that saved it from obscurity.

The "extent" reading is in

(322) The simplicity of his proposal exceeded its accuracy.

The "quality" reading:

(323) Simplicity is a virtue in proposals.

Many *-ity* forms have all three readings. A partial list follows:

efficacity
sagacity
tenacity
voracity
loquacity
specificity
catholicity
simplicity
chromaticity
authenticity
elasticity
toxicity
ferocity
scarcity
morbidity
acidity
lucidity

contemporaneity
simultaneity
spontaneity
homogeneity
farcicality
radicality
tropicality
topicality
cylindricality
prodigality
artificiality
cordiality
geniality
deferentiality
normality
banality
originality

humility
senility
virility
volatility
versatility
gentility
fertility
futility
tranquility
servility
jollity
frivolity
credulity
magnanimity
uniformity
urbanity
sanity

muscularity
angularity
popularity
sincerity
prosperity
severity
inferiority
superiority
security
obscurity
purity
obesity
density
immensity
intensity
verbosity
viscosity

rigidity
frigidity
validity
solidity
timidity
rapidity
stupidity
aridity
fluidity
liquidity
avidity
profundity
rotundity
crudity
rationality
optionality
morality
neutrality
universality
hospitality
sentimentality
sensuality
puncuality
mobility
agility
vanity
serenity
alkalinity
salinity
masculinity
solemnity
modernity
barbarity
vulgarity
familiarity
clarity
hilarity
religiosity
luminosity
impetuosity
diversity
passivity
objectivity
subjectivity
selectivity
productivity
sensitivity
receptivity
laxity
generosity

These forms also share some syntactic properties. They are all non-count nouns, with both of the major associated properties: not pluralizing, and not appearing with the indefinite article. Each of them appears with the genitive of the noun phrases to which their stem adjectives can be attributed, thus:

(324) a. His suggestion is practical.
b. The practicality of his suggestion . . .
(325) a. Timothy is timid.
b. Timothy's timidity . . .
(326) a. Keeping promises to Communists is futile.
b. The futility of keeping promises to Communists . . .

Many other -ity forms, however, differ in some or all of these properties. Some lack one or more of the three readings of the neutral interpretation. The largest group lacks the "extent" readings:

opacity
periodicity
nudity
lexicality
reality
nasality
anonymity
virginity
divinity
immunity
linearity
circularity

equality
actuality
sterility
unanimity
mediocrity
chastity
reflexivity

Finality lacks both "extent" and "quality" readings, *alacrity* lacks only the "quality" reading--that is, it cannot appear as the subject of a sentence without an article and modifying genitive or possessive "with which" phrase.

Some forms have besides the (possibly limited) neutral interpretation the meaning "something which is X," and as such can appear as count nouns, either in the plural or preceded by the indefinite article:

opacity
absurdity
potentiality
triviality
formality
actuality
inanity
obscenity
divinity
similarity
circularity
regularity
rarity
mediocrity
impurity
curiosity
necessity
ambiguity
iniquity
complexity

The following forms can appear in the plural, but not with the indefinite article:

legality
reality
generality
brutality
hostility
festivity

Other forms have the neutral interpretation and some other, unpredictable meaning as well:

mortality
nobility
facility
extremity
infirmity
maturity
identity
antiquity
activity

All of the forms listed as divergent so far are ambiguous; they have one or more of the readings associated with the neutral interpretation, and the syntactic characteristics associated with it, as well as some derivative interpretation, with other characteristics. There are _-ity_ forms, however, with _only_ divergent interpretations. Some can only mean "something which X."

oddity
eventuality
technicality
profanity
monstrosity

A few are collective nouns, which appear with the definite article with no associated genitive phrase and take plural verbs (the second reading of _nobility_, mentioned above, is in this group):

laity
majority
minority

Some are used like fractions, with following partitive constructions:

plurality
totality
majority
minority

Finally, there are many forms with totally unpredictable semantic relationships between stem and derivative which fall into no particular groupings:

capacity
publicity
electricity
atrocity
locality
nationality
personality
municipality
causality

fatality
mentality
sexuality
Christianity
fraternity
paternity
eternity
opportunity

polarity
seniority
priority
continuity
relativity
nativity
captivity

In this rather incomplete survey of _-ity_ derivation, over thirty percent of the total number of forms listed are irregular in some way. Irregularity on this scale in derivational processes is the primary motivation for the lexicalist proposal. It may therefore be assumed that _-ity_ is a fair test case for that proposal; if any suffixes are to be attached in the lexicon, _-ity_ must surely be among them.

F. Nominalizations in -ability

F1. Discussion

A form which has been omitted from the lists above in anticipation of special consideration is ability, the nominalization of able. In terms of the categorization just given, ability has both the neutral interpretation and a special derivative interpretation. In the latter interpretation it is pluralizable and cannot take a complement.

(327) a. Clarence is able to grow petunias in pots.

b. Clarence's ability to grow petunias in pots . . .

(328) a. Clarence's abilities are exceeded only by his accomplishments.

b. *Clarence's abilities to grow petunias and stuff pillows . . .

What is of interest here is not the nominalization of the free form able but rather the fact that adjectives with the suffix -able, when formed by the rule ABLE, nominalize to the ending -ability. It must be specified that the adjectives be formed by the rule ABLE, since some adjectives ending in -able which are not so formed, for example reasonable, honorable, do not nominalize in this way. This fact is of independent interest for questions of ordering, and we shall consider it again in Part III.

Not all adjectives ending in -able which nominalize to -ability are formed by ABLE. In particular, -able forms with non-free stems take -ity nominalization, thus:

probability
liability
capability
fallibility
feasibility
possibility
plausibility

compatibility
irascibility
culpability
amiability
vulnerability

A single exception to this pattern for the author is formidableness, *formidability. Of the regularly formed -able derivatives, I know of none which cannot take an -ity nominalization.

F2. Difficulty for the lexicalist hypothesis

This presents a problem for the lexicalist position. If -able derivatives are formed in the transformational component and the -ity nominalization rule applies to them, then on the assumption of homogeneity of components, the -ity rule must be in the transformational component. This is the crux of our argument against the lexicalist position.

An escape route remains open, however. The lexicalist may claim that -able derivatives are not being nominalized, but rather that -ity applies in the lexicon to form ability from able, and that a rule related to ABLE forms derivatives in -ability. Let us examine this possibility in some detail.

F3. The lexicalist alternative

In the first place, the same constraints that were observed on -able derivation still apply in -ability derivation. That is, the only possible stems are passivizable transitive verbs: readability, startability, employability are possible forms, but *sleepability, *waitability, *haveability, *owability are not. The selectional restriction between stem verb and its possible object noun phrases still holds, this time with the noun phrase appearing as the object of a genitive construction modifying the _-ability_ forms, as in

(329) The attainability of peace

(330) *The readability of peace

(331) The climbability of Mount Whitney

(332) *The deceivability of Mount Whitney

or

(333) Joe's dependability

(334) *Joe's lockability

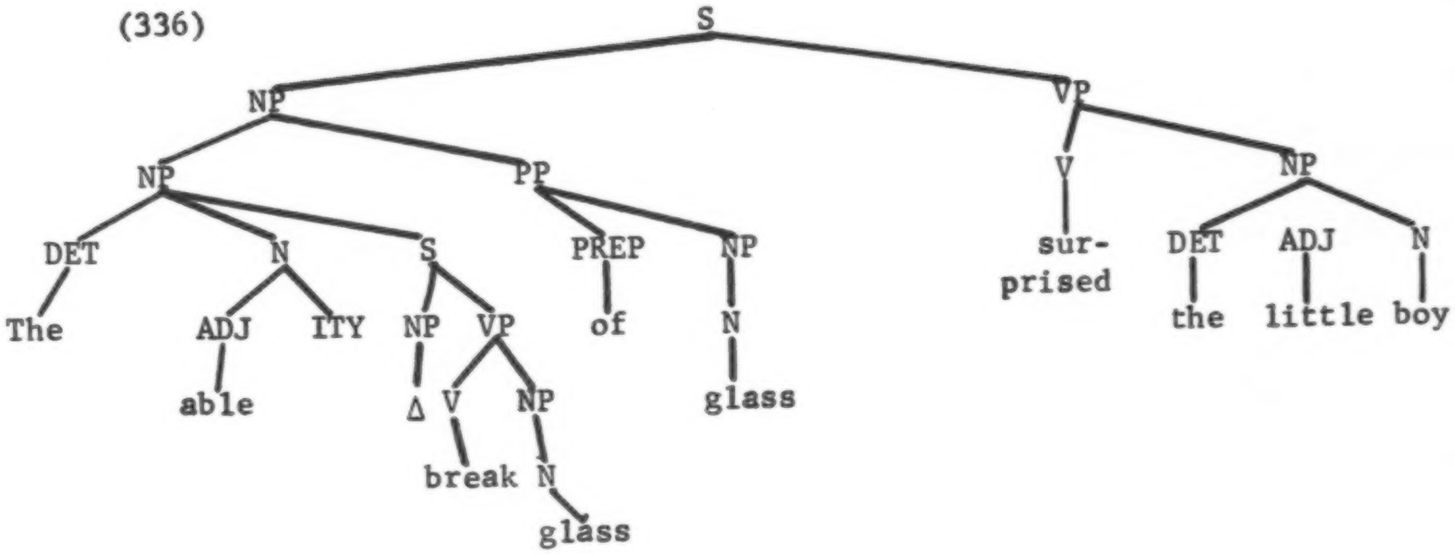
Finally, _-ability_ derivatives cannot take the prefix _self-_: *_self-startability_, *_self-governability_, *_self-adjustability_, *_self-blamability_ are all impossible forms, although _self-assertiveness_, _self-indulgence_, _self-sacrificiality_, etc., are not.

These facts lead to the same arguments as before regarding the appropriate base structures for _-able_/_-ability_ forms and the necessity of applying the passive transformation in their derivation. The derivations must be essentially the same. We shall trace one derivation. In the spirit of example (197) we shall derive

(335) The breakability of glass surprised the little boy.

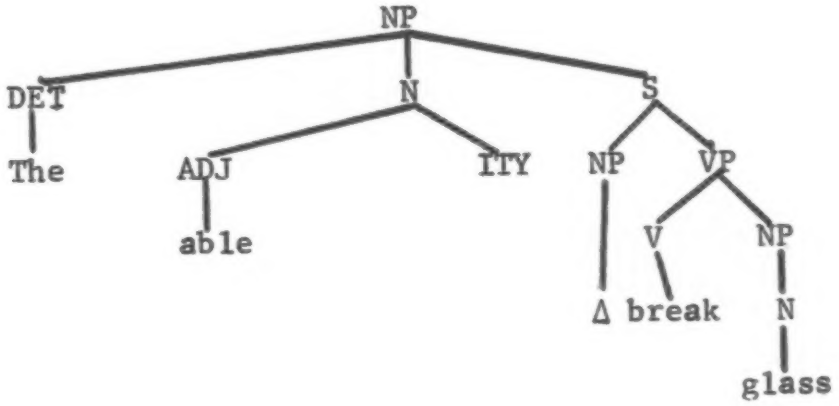
If _ability_ is lexical, the base structure of (335) must be something like

(336)


S
NP
VP
NP
PP
V
NP
DET
N
S
PREP
NP
sur-
prised
DET
ADJ
N
The
ADJ
ITY
NP
VP
of
N
the
little
boy
able
Δ
V
NP
glass
break
N
glass

There may be many quibbles about structure (336), particularly about the treatment of the genitive phrase "of glass". There are many unsolved problems in English genitive constructions-- for example, how are _of_ + NP phrases to be related to NP + _'s_ phrases?-- and it is not to our purpose to deal with them here. The important section of (336) for us is the subtree

(337)

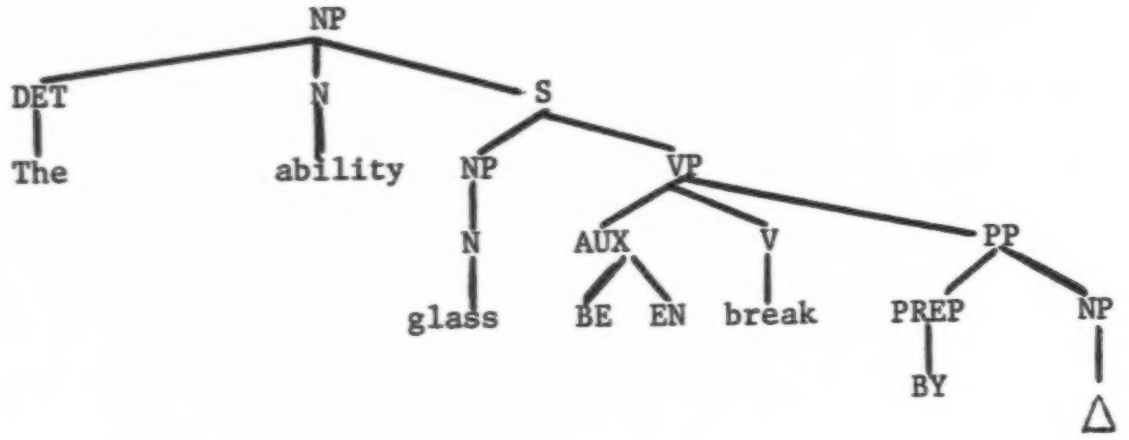

NP
DET
N
S
The
ADJ
ITY
NP
VP
able
V
NP
Δ
break
N
glass

since it is from this subtree that the derivative _breakability_ will be formed.

Notice that _ability_, although lexical, has internal structure. This is clearly descriptively necessary. The lexicalist program is not to deny that derivatives have internal structure, but rather that the structure is developed in the lexicon. Later phonological rules turn able+ITY into ability. Since this internal structure is not relevant to the derivation of (335) from (336), we shall suppress it for the time being, treating ability as a simple noun.

The passive transformation applies in the embedded sentence, yielding the new subtree

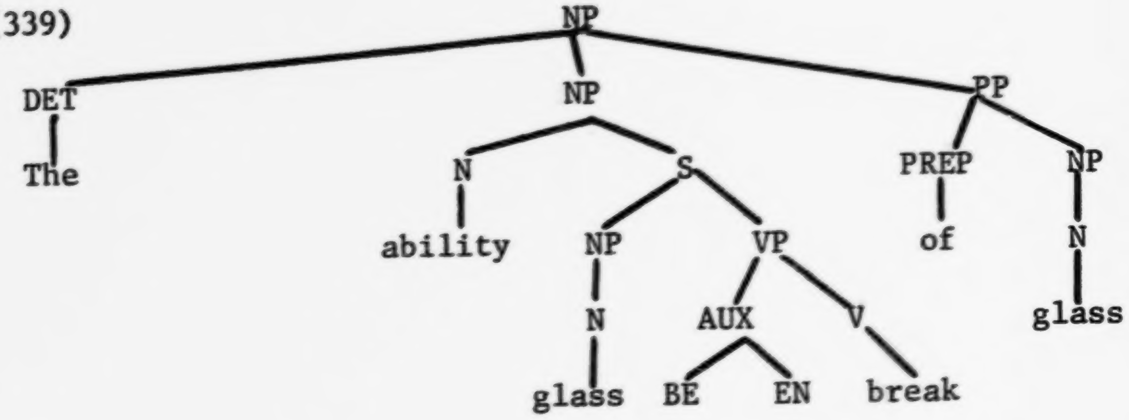
(338)



Here the same comments apply with respect to the imported AUX node as above in section D9.

Agent deletion next applies. This leave as the structure of the subject noun phrase of (335) the following:

(339)



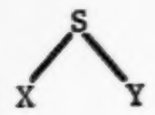
It is to this structure that the derivational rule ABILITY applies.

ABILITY:

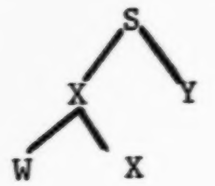
X	ABILITY	NP	BE	EN	V	OF	NP	Y	
1	2	3	4	5	6	7	8	9	⇒
1	6#2	0	0	0	0	7	8	9	

here: 3 = 8

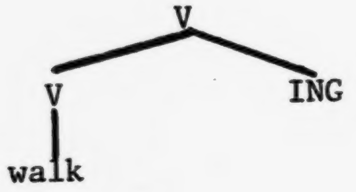
The symbol # designates an elementary transformation of adjunction with node raising, sometimes called "Chomsky-adjunction." The effect of the transformation is to make a copy of the node immediately dominating the node adjoined to, which copy immediately dominates both the node it is a copy of and the node adjoined. Thus in the structure



if a node W is left-Chomsky-adjoined to X, the derived structure is



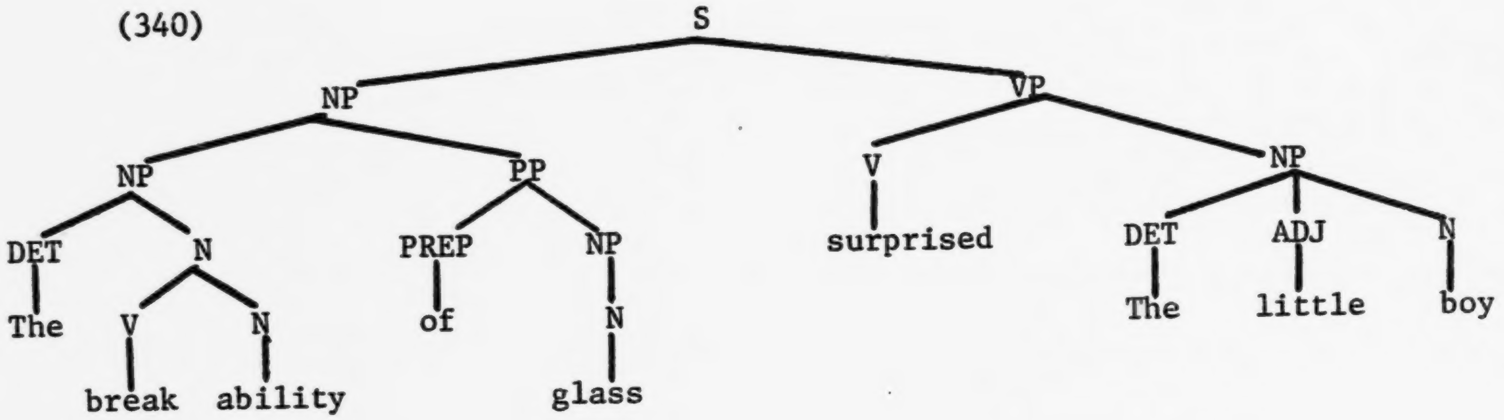
This elementary transformation is motivated by such phenomena in English as the affix movement rule (see Chomsky 1957, p. 39) which derives, e.g., be walking from be+ing walk. The derived structure of walking is



The higher V has no source in the base, since ING is not a V. It is produced rather, by the elementary transformation. Similarly, *ability* is a noun and *breakability* is a noun, but *break* is a verb. The information that *breakability* is a noun is supplied by the elementary transformation.

The superficial structure of (335) after the application of ABILITY is

(340)

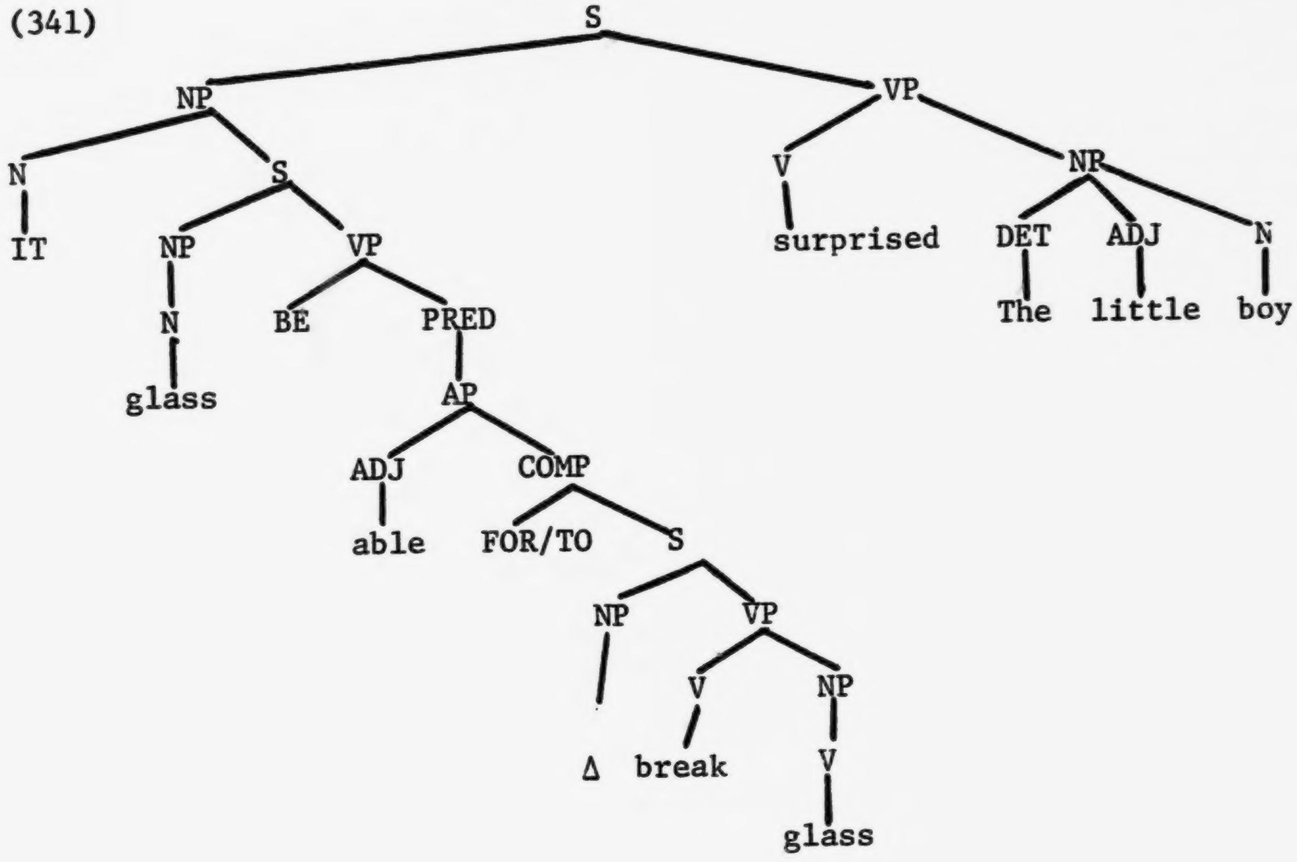

S
NP
VP
NP
PP
V
NP
DET
N
PREP
NP
surprised
DET
ADJ
N
The
V
N
of
N
The
little
boy
break
ability
glass

F4. Derivation by nominalization of *-able* forms

Now for the sake of comparison we shall derive (335) on the assumption that *ability* is not lexical, but rather that there is a nominalization rule, call it ITY, which applies to derived forms in *-able*. The formulation of ITY and the postulation of the underlying structures to which it applies are fundamental and unsolved problems for those who would avoid the lexicalist hypothesis. Are the three readings of the neutral interpretation carred by the suffix *-ity*, or do they reflect different underlying base structures? Is the alternation between subject of stem adjective and object of modifying genitive phrase accomplished by the same transformation (or family of transformations)?

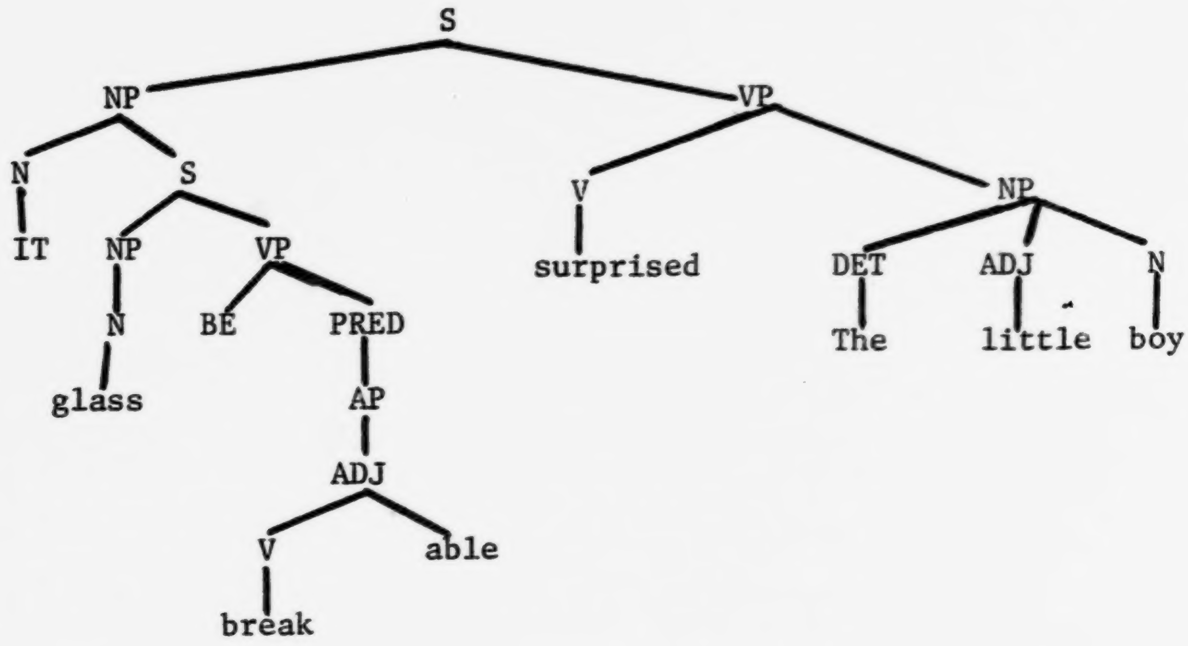
Lacking the answers to these questions, we shall assume the minimum necessary to the discussion that follows. As a base structure for (335) we shall assume

(341)


S
NP
VP
N
S
V
NP
IT
NP
VP
surprised
DET
ADJ
N
N
BE
PRED
The
little
boy
glass
AP
ADJ
COMP
able
FOR/TO
S
NP
VP
V
NP
Δ
break
V
glass

The subtree headed by the S depending from the subject noun phrase of the matrix sentence will be recognized as the deep structure of (197). After the application of the rules deriving the surface structure (278), the result is

(342)



This is a typical structure of the sort proposed by Rosenbaum (1965) for sentences with subject complements. According to Rosenbaum's rules, one could at this point insert the complementizer that and delete the subject pronoun it, giving

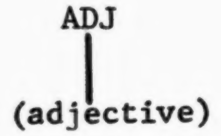
(343) That glass is breakable surprised the little boy.

Alternatively the it could be retained and the complement phrase extraposed:

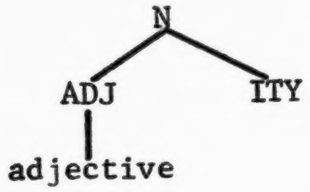
(344) It surprised the little boy that glass is breakable.

It will be observed that the semantics of (343) and (344) correspond most closely to the "state" reading of nominalizations in -ity. As mentioned earlier, the source of the alternative readings is an unsolved problem.

Instead of the complementation rules, I propose that the derivational rule ITY could apply to (342). ITY could be stated here in a way which would handle the present example, but again, the general statement of it is unknown. It is clear, however, that the central part of it, the nominalization itself, will convert the structure

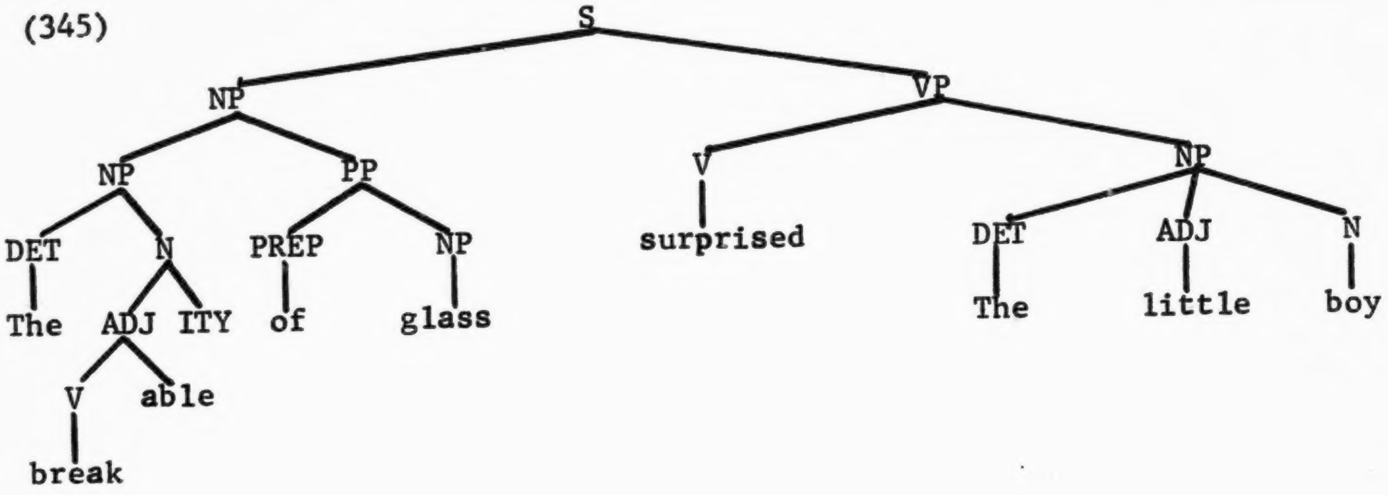

ADJ
(adjective)

to the structure


N
ADJ
ITY
adjective

The derived structure of (335) on this analysis, then, holding the questionable genitive phrase constant, would be

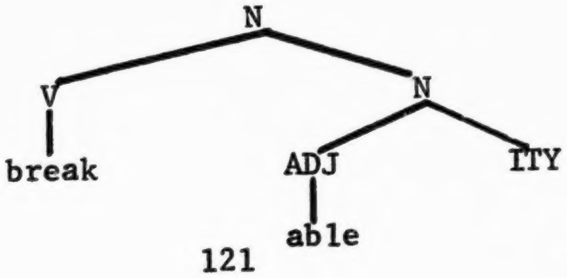
(345)


S
NP
VP
NP
PP
V
NP
DET
N
PREP
NP
surprised
DET
ADJ
N
The
ADJ
ITY
of
glass
The
little
boy
V
able
break

F5. Difference between the analyses

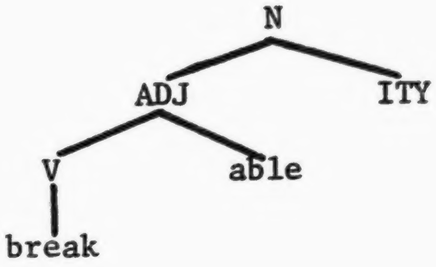
This structure differs from the other surface structure of (335), derived on the assumption that *ability* is lexical, only in one crucial point: the constituent structure of *breakability*. Restoring the internal structure to the lexical *ability*, the structure of *breakability* on the lexicalist derivation is

(346)


N
V
N
break
ADJ
ITY
able

On the derivation which assumes that ITY applies to derived -able forms, on the other hand, the structure of breakability is

(347)



In the latter, the major constituent break is before -ity; in the former, it is after break. We shall now consider some evidence to decide between these two analyses.

F6. Evidence for a choice

A common grammatical alternation in English is between adjective phrases and noun phrases, in which the head adjective of the adjective phrase nominalizes to become the head noun of the noun phrase, and the modifying adverb of the adjective phrase loses its adverbial inflection to become the modifying adjective of the noun phrase. Some examples are extremely rude/extreme rudeness, highly redundant/high redundancy, comfortingly warm/comforting warmth, absolutely certain/absolute certainty, clearly constitutional/clear constitutionality. -able forms can participate in this alternation: enormously excitable/enormous excitability, readily teachable/ready teachability. This suggests already that analysis (347), with the -able form as a constituent adjective, is the correct one. However, from the examples given this is not conclusive. It could be argued that these forms are actually showing another kind of alternation, in which adverbial modifiers of the stem verb of _-able_ forms alternate with adjectival modifiers of the corresponding _-ability_ form. Thus the pattern would be _excite enormously_/_enormously excit-able_/_enormous excit-ability_; _teach readily_/_readily teach-able_/_ready teach-ability_. Alternatively, it could be argued that these adverbs are modifiers of _able_ and the corresponding adjectives modifiers of _ability_ in the underlying forms. _Enormously able_, _enormous ability_, _readily able_, _ready ability_ are all possible phrases.

The first counterargument begins to lose its plausibility when we observe the wide variety of adverbs which can modify _-able_ stems but not the corresponding _-able_ or _-ability_ derivatives. Thus for example we have _rely heavily_ but not *_heavily reliable_ or *_heavy reliability_; _wash regularly_, *_regularly washable_, *_regular washability_; _accuse openly_, *_openly accusable_, *_open accusability_; _wound deeply_, *_deeply woundable_, *_deep woundability_.

The second counterargument is untenable because there are possible modifiers of _-able_ derivatives which are not possible modifiers of _able_ (or of _ability_). Thus _completely reliable_/_complete reliability_ but *_completely able_/*_complete ability_; _immediately reduceable_ (as in "Water is immediately reduceable to hydrogen and oxygen")/_immediate reduceability_, but *_immediately able_/*_immediate ability_.

Finally there is a class of examples for which both counterarguments fail simultaneously; the modifier can modify neither the stem verb (in the intended sense) nor _able_/_ability_. Such examples are _continuously adjustable_/

continuous adjustability, _infinitely variable_/_infinite variability_. Consider the impossible phrases *_vary infinitely_, *_infinitely able_, *_infinite ability_, *_continuously able_, *_continuous ability_. _Adjust continuously_ is a possible phrase, but it means "adjust constantly", whereas _continuously adjustable_ means "adjustable throughout the continuum."

With the failure of these counterarguments, we are left with analysis (347) of _-ability_ forms as the only possible one. But (347) was the analysis which resulted from applying ITY to the transformationally derived _-able_ forms. Therefore maintaining the assumption of homegeneity of components entails that ITY be placed in the transformational component, with all of its semantic irregularities and lack of productivity.

III. OF THE ORDERING OF DERIVATIONS

A. Introductory

If, as we have argued, we must give up either the assumption of the homogeneity of components or the assumption that all transformations are meaning-preserving, the next serious question becomes, which one? This is an empirical question; the only way to decide between the alternatives is to assess the empirical consequences of each and compare these against the facts of the language. This section is an exploration of some of the consequences of deciding to preserve the homogeneity of components and put the derivational rules in the transformational component.

It has been known since the earliest days of work on transformational grammar that an extrinsic ordering of transformations is necessary to capture certain generalizations. There are many arguments for this; a simple one is that active and passive sentences are transformed into interrogatives in the same way, thus:

(1) Can John have hit the ball?

(2) Can John have been hit by the ball?

If the passive transformation is ordered before the question transformation, this can be accomplished with no complication of the question transformation. If this ordering is not imposed, however, the passive transformation must be stated so as to apply to both declaratives and interrogatives, an enormous complication if not an impossibility.

In more recent work (Chomsky 1965, Chapter 3; Ross 1966a) some rather convincing evidence has accumulated that transformations are not only linearly ordered, but apply cyclically. And preliminary, unpublished work by Ross, Lakoff and others indicates that the situation is even more complex--that there are some transformational rules which apply before the cycle, and some which apply only on the last cycle.

If derivational rules are to be included in the transformational component, they must participate in some way in the ordering of that component Here, then, are suggested some factual questions. Can derivational rules be linearly ordered? Cyclically ordered? Is there any evidence to suggest that they are so ordered? We shall consider these questions in reverse order.

B. Evidence for ordering of derivational rules

B1. Adjectives in -ful

Evidence for the extrinsic ordering[1] of grammatical rules is of the kind which was just discussed regarding the passive and question transformations: whether the statement of some rule is simplified by ordering it before (or after) another rule. There are several such cases among rules of derivation.

Consider first derivative adjectives in -ful. On the most superficial level, -ful derivatives appear to be formed from one- and two-syllable noun and verb stems, including a great many which function as both noun and verb. Thus peaceful, pleasureful, suspenseful, mournful, forgetful, hopeful, worshipful, disdainful. A few stems have three syllables: disrespectful, disregardful. Out of the multitude of stems in English which meet this description, however, fewer than 150 can actually take the -ful suffix in my dialect. The linguistic problem is to specify as fully and economically as possible the constraints which characterize this class of stems.

The most extensive study of this class was made by A. F. Brown (Brown 1958) within the theoretical framework of Zellig Harris' "Cooccurrence and Transformation in Linguistic Structure" (Harris 1957). Brown argues first of all that only nouns, or more precisely only phonological alternants of nominals, may serve as -ful stems. Of the unambiguous stems, the vast majority are nouns. Some have no obvious verbal alternant, e.g., peaceful, gleeful, but many are morphologically closely related to a cognate verb, e.g. *deceitful*, *prayerful*, *thoughtful*, *useful*. Since there is no phonological reason to exclude **prayful*, **thinkful* (compare *playful*, *thankful*), this indicates a syntactic constraint to the effect that among noun-verb pairs, *-ful* attaches to the noun.

There are some apparent counterexamples, however: *forgetful*, *resentful*, *mournful*, *inventful*, *thankful*. *Thankful* can be explained as belonging to a class of derivatives of nouns whose normal free form is plural but which lose the plural morpheme when they serve as stems of derivatives. Other such nouns are *scissors*, *guts*. Consider their derivatives in *-less*: *scissorless*, *gutless*. Similarly *thankless* is derived from *thanks* (there is no question about the nominal status of *-less* stems). The derivation *thanks* - *thankful* is therefore quite plausible. No such argument may be made for the other derivatives. Brown proposes that their stems are nonetheless phonological alternants of the underlying nominals *forgetting*, *resentment*, *mourning* (and on the same argument *invention*, though *inventful* is not among Brown's data). On this assumption he is able to give a (Harris-type) transformational analysis of all *-ful* forms.

The obvious difficulty confronting this analysis is why *forgetting*, *mourning*, *resentment* and *invention* should be excluded as *-ful* stems in their free forms while *thought*, *truth*, *pleasure*, *deceit*, etc., are not. Brown attempts to explain this by positing a characteristic stress pattern to which nouns must conform in order to serve as *-ful* stems. He symbolizes this pattern as

$$\left[(\grave{-})\ \overset{\circ}{-} \right] \acute{-} \left[\overset{\circ}{-} \right]$$

The symbolism is as follows. The horizontal lines represent syllables. The grave accent represents secondary stress, the acute accent primary stress, and the raised circle zero stress. The parentheses indicate optionality of what they enclose, and the brackets a kind of Sheffer stroke relation between the bracketed elements: either may appear, or neither, but not both. The expansion of the schema is interpreted as follows: possible stem nouns for _-ful_ derivatives are (a) stressed monosyllables; (b) bisyllabic words with primary stress on one syllable and zero stress on the other (this would exclude, e.g., _blackboard_); (c) trisyllabic words with secondary stress on the first syllable, zero stress on the second syllable, and primary stress on the third syllable. This last group is quite small, apparently including only _disrespect_, _disregard_, _disbelief_, and _disarray_. In particular, it omits _forgetting_, _resentment_, and _invention_.

There are two basic reasons why this argument is inadequate. First, stress in English is assigned by a complex series of rules which operate on surface syntactic structures (see Chomsky and Halle, forthcoming). The formation of these structures is therefore logically prior; information about stress is not available to the syntactic rules, including the rules of _-ful_ derivation.[2]

The second reason is that many nouns which pass the stress test as well as Brown's other restrictions (ability to appear without an article, co-occurrence) are still not possible _-ful_ stems. Some may be explained by restrictions which Brown did not notice; for example, there is apparently a phonological constraint that nouns ending in /f/ or /v/ are excluded, thus *loveful, *griefful. For many excluded forms, however, there is no such explanation; Brown must regard their exclusion as accidental. A few examples are *firmnessful, *judgmentful, *tensionful, *wisdomful, *weaknessful, *movementful, *actionful, *dotingful, *daringful, and *mourningful. The last example is particularly glaring since Brown considers it specifically. His comment is "The loss of -ing in the alternant mourn- of mourning and the retention of -ing in meaning before -ful both result in forms that fit the stress pattern of the bases." (op. cit., p. 8). The meaning case is interesting. There is independent evidence that meaning is a lexical noun, rather than a nominalization derived from a participial. Unlike other participial nouns, it can never appear with a complement (or object). Thus

(3) a. This poem means that we shall all die.
    b. *This poem's meaning that we shall all die . . .

Compare

(4) a. Jack dared to resist the policeman.
    b. Jack's daring to resist the policeman . . .

(5) a. Alice is mourning Jack.
    b. Alice's mourning Jack . . .

Also, meaning can be used as superordinate to a genitive construction, the object of which is the logical subject of meaning, in nexus with a post-copular complement expression:

(6) The meaning of this poem is that we shall all die.

(7) *The daring of Jack was to resist the policeman.

If meaning is lexical and mourning is not, one might expect (and we shall suggest) an explanation for the possibility of meaningful and the impossibility of *mourningful which takes that fact into account.[3] But on Brown's argument, the fact that one form exists and the other does not is purely fortuitous; it might just as well have been the other way around. In particular, there is no explanation based on the stress pattern why mourning is excluded as a stem for -ful, since it fits the pattern just as well as mourn-.

Brown may claim, as we have, that he can only give necessary, not sufficient conditions for a nominal to be a possible -ful stem. This claim would be correct, but misses the point: we are trying to characterize more fully the necessary conditions, to explain in a principled way more of the exclusions than Brown does and at the same time avoid the theoretical difficulties discussed regarding the "characteristic stress" pattern. Brown's generalization that only nominals can be -ful stems is an attractive and plausible one, which it would be nice to maintain. A better explanation for the apparent counterexamples and the classes of excluded nominals would strengthen the generalization.

A likely candidate for such an explanation would be an extrinsic ordering of the rules of suffixation. As the examples of impossible -ful forms have indicated, excluded stems fall into classes. No noun ending in the suffixes -ness, -ment, -ing (in meaning, we claim the -ing is not a suffix), -ity, or -tion can be an -ful stem. On the other hand, nominalizations which involve radical changes rather than suffixation--use, thought, etc. --are permitted.

Ordering the *-ful* rule after these and before the suffixational rules would explain this difference. It might be claimed that *truth*, *youth*, *mirth*, *sloth*, which are all possible stems, are suffixationally nominalized adjectives; if this is the case, it indicates that the *-ful* rule is ordered after the *-th* rule.

The formulation of the *-ful* rule is of course a separate question from its ordering. Brown's transformational analysis might be correct, or the traditional analysis that *(Noun)ful* is simply a reduced form of *(Noun)-full* (this would explain the article-less occurrence that Brown must simply assert, and would account in a natural way for the behavior of *-ful* derivatives with respect to other derivational rules: all and only those suffixes which can apply to *full* can apply also to *-ful* derivatives. Those which can are *-ness* and *-ly*, some which cannot are *-ify*, *-ize*, *-ity*). Or the "rule" may be simply a list of the possible nominal stems from among all those available at the point of the rule's application. There is some slight evidence to indicate that the rule is still at least marginally productive. In an advertisement in a Boston newspaper, I came across the phrase "our most valueful sale ever"; and Renee Beller has told me of an ad she heard on radio station WQXR, New York, in which a room was described as "ideafully decorated." Both of these forms, though neologisms, are consistent with the constraints suggested here and in Brown's paper.

B2. *-ment*, *-tion*, and *-less*

The next evidence we shall consider for extrinsic ordering of suffixarules has to do with the suffixes *-ment*, *-tion*, and *-less*. Joseph Emonds has demonstrated (Emonds 1966) that the choice between the nominalizing suffixes *-ment* and *-tion* is determined phonologically, by the systematic phonemic representation of the stem verb. Briefly and without some refinements, the rules he gives are as follows: verbs with the prefixes *eN-* and *be-* take *-ment* (*bedevilment*, *bereavement*, *embezzlement*, *encouragement*); verbs ending in oral or nasal stops, verbs ending in /v/ or /s/, preceded by an optional liquid, nasal, or peripheral stop, preceded by a lax vowel, verbs ending in /v/ or /z/, preceded by a high or low tense vowel, and verbs ending in a liquid preceded by a vowel all take *-(A)tion* (*invitation*, *defamation*, *ordination*, *starvation*, *sensation*, *fixation*, *accusation*, *derivation*, *composition*, *consolation*, *exploration*); all other verbs take *-ment*. These rules are disjunctively ordered as given; a number of verbs with the prefix *eN-* otherwise meet the specifications for *-tion* assignment (*enthrone*, *embarrass*, *enfranchise*, *entail*). Homogeneity of rules can be maintained, however, as Emonds does, by the expedient of marking verbs in *be-* and *eN-* as exceptions to the rule for *-tion* assignment and then assigning *-ment* to all verbs to which *-tion* is not assigned.

Emonds' rules are not without their exceptions, which he conscientiously lists (some examples are *commandment*, *containment*, *assessment*, *involvement*, *amusement*, *requirement*, *condolement*, *encapsulation*, *continuation*). The generalizations he has achieved, however, are much more striking than any which appear to be possible on the basis of syntactic or semantic constraints. We may therefore conclude that the only systematic difference between nominalizations in *-ment* and those in *-tion* is phonological. Two things emerge from Emonds' work which are of interest for us here.

In the first place, it is significant that Emonds is able to make his rules more general by his assumption of extrinsic ordering of rules of suffixation. That is, he excludes from consideration all verbs which do not take either _-ment_ or _-tion_, but some other nominalization, e.g., _occur-occurrence_, _arrive-arrival_, _erase-erasure_, _advise-advice_, _neglect-neglect_, _respond-response_, on the assumption that these nominalizations have already been assigned at the point in the grammar at which his rules apply (_op_. _cit_., p. 3). If this were not assumed, his rules as formulated would apply to every verb in English. Whether a reformulation of the rules which avoided this assumption would be possible at all is highly questionable; it would certainly be considerably more complex.

Secondly, the interaction of nominalizations formed by these two suffixes with the adjectivalizing suffix _-less_ is very interesting. _-less_ takes as stems lexical and derivative nouns with no apparent semantic restrictions. Some random examples are _cloudless_, _treeless_, _heedless_, _mindless_, _truthless_, _distanceless_, _moistureless_, _leaderless_, _teacherless_, _weightless_, _sexless_. Among the derivative nouns which can serve as _-less_ stems are many in _-tion_: _expressionless_, _foundationless_, _vibrationless_, _actionless_, _directionless_, _oppositionless_. But what is striking is that _-ment_ nominalizations cannot be _-less_ stems. Thus *_contentmentless_, *_appointmentless_, *_developmentless_, *_adornmentless_, *_involvementless_, *_agreementless_, etc., are impossible forms. The only possible counterexample listed in the Reverse English Word List (Brown 1963) is _decrementless_, which could be taken as derivative from _decrease_, although not by Emonds' rules. This form, together with the clearly lexical-stem derivatives _raimentless_, _sentimentless_, _garmentless_, _monumentless_, _filamentless_, indicate that the constraint which prohibits _-ment_ before _-less_ is _not_ phonological. But if the only systematic difference between nominalizations in -tion and nominalizations in -ment is phonological, and there is no phonological reason to exclude the latter from -less stem position, there can be no principled reason for doing so at all except extrinsic ordering, with the rule attaching -less interposed between the -tion and -ment rules. It is perhaps just a happy coincidence that Emonds found the latter rules easier to state in the order mentioned.

Other restrictions on the productivity of -less are interesting in this regard. Nominalizations in -ness and -ity, as well as those in -ment, are excluded. *Happinessless, *consciousnessless, *painfulnessless, *legalityless, *stabilityless, *generosityless are some examples of semantically plausible but nonetheless impossible forms. The valid words witnessless and universityless show that these constraints are not phonological. Extrinsic ordering is suggested once again as the simplest explanation. Here there is another consideration to take into account, however. -ness and -ity, unlike -ment, apply to adjectives. -less forms adjectives. If the nominalization rules are ordered after the adjectivalization rule, one would expect them to apply to the derivative adjectives it forms. In the case of -ness this is no problem. Any -less adjective can take the suffix -ness, e.g. witlessness, truthlessness, expressionlessness. The same is not true for -ity; no word ends in -lessity. This might appear to be a problem, since neither order produces valid results. We have already observed, however, in relation to other problems, that (a) -ity stems must be of Romance origin, and (b) that when a free form serves as a derivational suffix, as able and perhaps full, it imposes some of its own characteristics on the derivatives it forms with respect to its susceptibility to further derivation. Coupled with the observation that *less* is of Germanic origin, these facts offer a ready explanation for the impossibility of *-ity* nominalizations of adjectives in *-less*.

B3. Adjectives in *-able*

In Section II it was pointed out that not all adjectives in *-able* are formed by the rule ABLE. Besides the class with non-free stems, there is a class of *-able* derivatives with noun stems:[4]

peaceable
marriageable
knowledgeable
salable
fashionable
companionable
impressionable
actionable
objectionable
reasonable
treasonable
seasonable
personable
pleasurable
sensible
comfortable
sizable
charitable
forcible
profitable
contemptible

Possible other candidates for membership in this class are *honorable*, *miserable*, and *memorable*, with phonological changes in the stems of the last two corresponding to that in the stem of *charitable*.

It is remarkable that it is just the members of this class, with the exception of *marriageable* and *knowledgeable*, which do not nominalize in *-ity*. Most of them nominalize in *-ness*, although it could be said that the stems of *sensible* and *comfortable* are their nominalizations.

Clearly there can be no phonological restriction against *-ity* nominalization of these forms. Not enough is known about *-ity* derivation to exclude the possibility of an independently motivated syntactic or semantic constraint which rules them out as stems. If a way can be found to handle the exceptions, however, extrinsic ordering again provides a simple answer. That is, the ITY rule applies after ABLE, as we argued, but before the rule which forms these noun-stem derivatives in *-able*.

So far in this thesis we have dealt exclusively with suffixation, except for the preposed self- of self-ing adjectives. We shall now consider some evidence that prefixational rules must be extrinsically ordered among the suffixational rules.

B4. The prefixes un-

There are at least two different prefixes in English with the shape un-. One, call it un-1, attaches to verb stems with the characteristic result that the meaning of the derivative is an action which reverses the action designated by the stem. Thus unlock, untie, undress. These verbs contain no syntactically observable negative element according to Klima's tests (Klima 1964). They do not change the indefinite prearticle from some to any:

(8) He locked some doors.
(9) He didn't lock any doors.
(10) *He unlocked any doors.

Tag questions behave as for affirmative sentences:

(11) He locked the door, didn't he?
(12) He didn't lock the door, did he?
(13) *He didn't lock the door, didn't he?
(14) He unlocked the door, didn't he?

Another un- (un-2) attaches to adjective stems with the semantic effect of simple negation: unhappy, unwise, unfaithful. Among the possible stems for un-2 are derivatives in -able. Thus unbelievable, unwashable, unstartable, unreadable. Some possible stems for -able derivation are the verbs lock, tie, dress. Since verbs prefixed by un-1 have no negative element, and there is no reason to suppose there to be any other syntactic difference between these verbs and their stems, there is no apparent reason to exclude them from any position appropriate to their stems. In particular, there is no reason to exclude them as stems for _-able_ derivation. Therefore one would predict that the derivatives _unlockable_, _untiable_, _undressable_ are systematically structurally ambiguous between the bracketings _(unlock)able_ (_un_-1) and _un(lockable)_ (_un_-2). This ambiguity does not occur, however; only the _un_-2 reading is possible. Also one would predict that _un_-2 could apply to _-able_ derivatives with stems in _un_-1, but the forms *_ununlockable_, *_untiable_, *_unundressable_ are impossible. Therefore it must be concluded that _un_-1 forms are excluded from _-able_ derivation. The only principled way that this can be done is by extrinsically ordering the _un_-1 rule after the _-able_ rule.

C. Derivations and the transformational cycle

The arguments for extrinsic ordering of the derivational rules discussed are based on constraints on the applicability of particular rules which would otherwise be completely *ad hoc*, and which would complicate the rules if stated therein. These arguments are vitiated if the rules are cyclically ordered, since derivatives formed on one cycle of application would be available as stems for derivation on subsequent cycles unless *ad hoc* restrictions were imposed to avoid it. Thus for example a nominalization in *-ment* would be formed after the derivation of adjectives in *-less* on one cycle, and on that cycle could therefore not take *-less* as a suffix. On the next cycle, however, nothing would prevent *-less* from applying to the *-ment* derivative. It must therefore be concluded that the rules are not cyclically ordered.

This presents no particular difficulty for the thesis that derivational rules are in the tranformational component, since as mentioned above, there is evidence to indicate that other transformational rules also do not participate in the cycle. The exact locus of derivation within the transformational component can only be determined by detailed study of the interaction of global transformations with derivational rules of the sort begun in this paper. We have seen evidence that *-able* must follow the passive transformation, and *-ity* must follow *-able*. If the passive transformation is in the transformational cycle, as has generally been assumed, then that is evidence that these two derivational rules, at least, cannot be pre-cyclical. Similar arguments must be brought to bear with regard to other rules of derivation. A particularly interesting result would be to show that the derivational rules form a homogeneous bloc, i.e., that no non-derivational rule need apply between any two derivational rules. The theory could then be strengthened by positing a "morphological" subcomponent of the transformational component, in which alone could transformational rules have semantic effects. Nothing in this paper contradicts such a possibility.

D. Impossibility of linear ordering of derivations

D1. -tion, -al, -ize

A serious difficulty does confront the attempt to impose extrinsic order on rules of derivation. This is the fact that a straight linear order of the rules is not possible. There are two three-member groups of suffixational rules which cannot be formulated if non-cyclical linear ordering is imposed on them.

The first group consists of the suffixes -tion, -al, and -ize. The nominalizing suffix -tion we have already discussed. The -al under consideration is not the verbal nominalizer of refusal, arrival, but the adjectivalizing suffix which applies to nominal stems, as in verbal, autumnal, national. It applies not only to lexical nouns, but also derivatives in -tion: educational, processional, formational, directional. If -ial is simply a variant form rather than a different suffix, other derivatives can also be stems: managerial, conspiratorial, preferential.

-ize is the most productive verb-forming suffix in English. It applies to lexical nouns (unionize, carbonize, vaporize), lexical adjectives (modernize, standardize, immunize), and to derivative adjectives (theatricize, americanize) including in particular derivative adjectives in -al and its variant -ar (centralize, industrialize, brutalize, polarize, circularize). It applies to those derivative adjectives ending -tional as well (directionalize, coeducationalize, sensationalize).

But the nominalizing suffix for all -ize derivatives is -(A)tion:

unionization
carbonization
vaporization
modernization
directionalization
americanization
centralization
industrialization
brutalization
coeducationalization
standardization
immunization
circularization
polarization
theatricization
sensationalization

Thus the *-tion* rule must apply to *-ize* derivatives, the *-ize* rule to *-al* derivatives, and the *-al* to *-tion* derivatives, an untenable situation under linear ordering.

D2. *-ist*, *-ic*, *-al*

The second group of suffixes to be considered includes *-ist*, *-ic*, and *-al*. The situation here is less clear than before because of the semantic complexities of the suffixes. *-ist* is a nominalizing suffix which attaches to lexical and derivative adjectives and nouns (*purist*, *urbanist*, *nudist*, *instrumentalist*, *geneticist*, *motorist*, *stylist*, *columnist*, *zionist*, *segregationist*, *behaviorist)* and sometimes alternates with *-y* or *-ism* (*biologist*, *philanthropist*, *theist*, *communist*). Nominalizations in *-ist* always refer to human agents, but the relationship between the human agent and the stem can be quite varied, as the above examples show. A *theist*, *communist*, or *zionist* believes in a certain body of doctrine; a *philanthropist* practices *philanthropy*; a *segregationist* is characterized by both beliefs and practices. *Urbanists*, *biologists*, and *geneticists* are students of fields; stylists and columnists are employed in certain ways; *motorists* and *instrumentalists* are operators. It might be argued that *behaviorists* belong to all these groups at once.

-ic derivatives are adjectives formed from nouns, also with varied semantic relationships. *Metallic* means "made of or resembling metal;"

cyclic means "occurring in cycles"; *angelic* means "having the qualities of an angel"; *atomic* means "of or pertaining to atoms". Derived nouns are not in general possible *-ic* stems, although many stems are polymorphemic, e.g., *microscopic*, *telegraphic*, *photoelectromagnetic*. A great many *-ic* forms, however, end in *-istic*: *realistic*, *Hellenistic*, *pianistic*, *atheistic*, *atomistic*, *Platonistic*, *futuristic*, *modernistic*, *journalistic*. In every case these forms have no human element in their semantics; they are apparently unrelated, except by common stems, to the *-ist* nominalizations which appear to be proper parts of them.[5] Some of the *-istic* forms are adjective alternates of *-ism* forms (*atheistic*, *realistic*), others designate qualities appropriate to the field of endeavor surrounding their stem nouns (*pianistic*, *journalistic*), and some appear to be infixational derivatives of *-ic* forms, referring to qualities which imitate in some way the qualities designated by the source *-ic* form (*Hellenistic*, *Platonistic*).

It is an open question whether the *-al* suffix which interacts with this group is the same as the one in the former group. Both form derivative adjectives, and the derivatives differ in no systematic way that I have observed. However, the extensive group of *-ic* derivatives are the only adjectives which can serve as *-al* stems, with the exception of a few forms in *-atory* (*dedicatorial*, *piscatorial*, *investigatorial*, and a number of forms in *-oid* (*spheroidal*, *androidal*) which are probably to be taken as nouns. It may be, therefore, that the *-al* which appears after *-ic* derivatives is unique to that position.[6]

In many cases the *-al* after *-ic* is optional (*idiotic(al)*, *mystic(al)*, *microscopic(al)*, *orthographic(al)*, *periodic(al)*). When this is the case, it sounds rather redundant, and it is generally omitted for stylisitc reasons. In some cases, however, the *-al* is required (*typical*, *mythical*, *farcical*, *paradoxical*, *psychological*, and in general all derivatives of words in *-ology*); in other cases it is impossible (*basic*, *alcoholic*, *athletic*, *patriotic*). In a few cases *-al* introduces a semantic difference (*economic*/*economical*, *historic*/*historical*, *politic*/*political*, *fantastic*/*fantastical*, *psychic*/*psychical*).

Following this discussion, it may be that we are dealing not with the suffixes *-ist*, *-ic*, and *-al*, but simply with *-ic* and two of its alternants, *-istic* and *-ical*. Whatever the truth is on this matter, there is a cyclic pattern here also: *-istical*, *-alistic*, and *-icalist* are all occurring word-final sequences (*egotistical*, *nationalistic*, and *periodicalist* are among the examples attested in the *Reverse English Word List* (Brown 1963)).

D3. Recursive derivation

With cyclic patterns such as these, one might expect the possibility of recursion. This expectation is born out in both cases. Cases in point are derivative sequences like *organize*, *organization*, *organizational*, *organizationalize*, *organizationalization*, etc.; *physical*, *physicalist*, *physicalistic*, *physicalistical*, *physicalisticalist*, etc. Each new derivative receives an increasingly precise semantic interpretation. By the end of the second cycle, the derivative is so narrowly precise as to be totally useless, and so internally complex as to be difficult to understand. This does not make it an impossible form, however, any more than a sentence with multiple self-embeddings, which would never be used in an actual utterance, is thereby ungrammatical.

English is not the only language with cyclic derivational patterns. German has an adjectivalizing suffix -lich and a nominalizing -keit, each of which can apply to derivatives formed by the other. Thus we observe the sequence schade "shame", schädlich "shameful", schädlichkeit "shamefulness", schädlichkeitlich "shamefulnessful", schädlichkeitlichkeit, etc.[7]

In summary then, the problem is the following. The derivational rules of English as a whole cannot be cyclically ordered. Some subgroups of them, however, must be cyclically ordered. Therefore the derivational rules cannot be linearly ordered as a whole, in spite of the considerable evidence that many individual rules are extrinsically ordered with respect to each other. How are these contrary bodies of evidence to be mutually accommodated? That is, what is the strongest statement that can be made about the ordering of derivations?

E. The epicycle hypothesis

The available evidence, which is admittedly scanty, indicates that it may be possible to order the rules in such a way that rules which must be cyclically ordered can always be ordered adjacent to each other; that is, that no rule which does not participate in a given cycle need be ordered (extrinsically or intrinsically) between any two rules which do. This can be made clearer by a diagram.

A --- B --- C --- D --- E --- F --- G

Assume that A, B, etc. are the names of derivational rules and the (---) are ordering relations, extrinsic or intrinsic (typically not every pair of rules in a sequence will be ordered). Then the proposal under discussion is that cyclical ordering is possible only among groups of rules whose names are alphabetically adjacent. Possible cyclical groups would be B - C, F - G, C - D - E, A - B - C - D, and so on; C - D - F, A - E, and so on would not be possible cyclical groups.

The importance of this "epicycle" hypothesis is that if it is true, the theory of grammar can be made stronger than if any random set of derivational rules can participate in a cycle. In the latter case, a "pointer" must accompany every rule to indicate the next rule or rules which can apply to its output, and the generalizations that are achieved by extrinsically imposed sequential ordering are lost. If the epicycle hypothesis holds, however, individual notation on each rule is not needed; order is sequential, and a special notational device brackets groups of rules which form an epicycle.

Some possible counterevidence to the epicycle hypothesis from English has to do with the suffix _-ment_. A number of words which end in _-ment_ can take the suffix _-al_. Many are lexical nouns, as in _ornamental_, _sentimental_, _detrimental_, _segmental_, _departmental_. If _government_ and _development_ are in fact _-ment_ derivatives the epicycle hypothesis is untenable. The rule for _-al_ derivation would have to follow the _-ment_ rule, but _-ment_ doesn't participate in the _-al_, _-ize_, _-tion_ cycle. There is some evidence that _government_ and _development_ are lexical nouns also. One piece of evidence is the strength of the pattern to which they are apparent exceptions. For every clear case of _-ment_ nominalization, _-al_ suffixation is impossible: *_embarrassmental_, *_improvemental_, *_amusemental_, *_confinemental_. On the other hand are the many lexical nouns ending in _-ment_ which can take _-al_, exemplified above. If this were not the problem we were trying to explain, this evidence would be taken as nearly conclusive that _government_ and _development_ are lexical nouns. Another more tenuous piece of evidence is the fact that both _govern_ and _develop_ violate Emonds' rules (Emonds 1966) for the phonology of _-ment_ stems; by those rules they should nominalize with _-tion_. Finally in the case of _government_ it can be argued that semantically it does not have only the characteristics of a nominalized verb, referring to an action or its result, as in

(15) The government of these territories is a burden.

but also may be used as sort of a collective noun, as in

(16) Spain has not elected a new government for some years.

This is particularly clear in British English, where government is plural when used in the latter sense:

(17) The government are studying the problem now.

(18) *The government of these territories are a burden. (In the sense of (15)).

I know of no analogous argument for development. It may be the crucial counterexample to the epicycle hypothesis. The matter deserves further study, bearing in mind, of course, that the history of science teaches us caution in dealing with epicycles.

This discussion has shown that the decision to maintain homogeneity of components and consider derivational rules as part of the transformational component has advantageous and disadvantageous empirical consequences. The relative weight at present favors the advantageous consequences, I think. An indefinitely great variety of logically possible orderings would satisfy the arguments for extrinsic ordering of derivational rules we have examined, including the epicyclic linear order proposed. The counterevidence discussed is against a particular ordering, non-cyclic linear. If it can be shown convincingly that systematic ordering is impossible, by arguments analogous to the one based on developmental, then the balance would shift the other way. It is fairly certain that the transformational component is systematically ordered; but of the details of that order, our knowledge is slight.

FOOTNOTES: SECTION I

1. "Morphology" carries the connotation of form or shape, and the changes therein under derivation. Since we are here concerned entirely with syntax, the more precise phrase is to be preferred.

2. Not much work has been done directly on derivation in a generative framework, and even less has been publicly disseminated. The earliest published investigation is in Lees (1960). Lees' topic is nominalization, and he considers derivational nominalization as well as other kinds. One of his (families of) transformations, Action Nominal (pp. 67-68), assigns a nominalizing morpheme Nml in certain contexts. He goes on to say (p. 68), "The nominalizing morpheme -Nml will later produce derived nominals in -tion, -ity, -ment, etc." This appears to be a claim that although the nominalization is in the transformational component, the particular form the nominalizing suffix takes is assigned by the morphophonemics. Lakoff (1965) includes among his examples a number of derivational rules and assumes that they are in the transformational component. A similar assumption is made by Peterson (1966). Annear and Elliott (1965) present the only investigation I know of of the assumption itself. Their proposal is that there is both lexical and transformational derivation. Their arguments are based on the irregularities in derivation and the existence of certain ambiguities, such as the fact that "John's illness" can mean either "John's disease" or "the fact that John is ill." Zimmer (1964) investigates in detail

the constraints on affixal negation, without addressing himself to the question of the locus of derivation.

3. This and associated notions have been worked out in considerable detail by Lakoff (1965).

FOOTNOTES: SECTION II

1. I use the word "rule" in its broadest sense, meaning describable regularity. Nothing about formal characteristics, degree of productivity, etc., is presupposed by the term.

2. Lest the reader consider this example overly fanciful, he is referred to Dolby and Resnikoff (1964).

3. Here I differ from Postal, who has recently claimed " . . . the treatment of the element _self_ as a grammatical formative is untenable. In fact _self_ must be taken to be a noun stem as we see clearly in such phrases as _the expression of self in our society_, _selfish_, _selfless_, etc." (Postal 1966, p. 182). The mechanism of reflexivization, he suggests, is that under the appropriate conditions the feature /+Reflexive/ is inserted in the syntactic feature matrix of the reflexivized noun phrase, and that on a subsequent pass through the dictionary the only noun in the language which is marked /+Reflexive/, _self_, is put in the appropriate position in the reflexivized noun phrase, replacing (phonologically) the deep structure noun which had been there.

This analysis obliterates a significant semantic distinction between the uses of _self_ in examples (2) and (13). Presumably in awareness of this, Postal claims " . . . the dictionary entry for the noun stem _self_ . . . has no semantic element" (_op_. _cit_., p. 206). This claim is consistent with the analysis, but surely false. Taken at face value, it means we cannot understand sentence (13), or at any rate, that sentence (13) is no more meaningful than it would be if some arbitrary noise, say brubble, were substituted for self. The situation is somewhat better if we understand Postal to mean that its semantic content is entirely to be interpreted from its syntactic content, and that the significant syntactic content of self is the feature /+reflexive/. But one is at a loss to determine how the semantic component could interpret the richness and subtlety of meaning of the word self in sentence (13) from this single syntactic feature; and, as pointed out above, how it would discover that the same interpretation was not relevant in sentence (2), or in any reflexive sentence,for that matter.

I would claim, rather, that the reflexive self is indeed a grammatical formative, its presence predictable from the underlying structure of a sentence, and that its phonological identity with the lexical item self is accidental, that they are homonyms.

Syntactic evidence for this claim is somewhat difficult to discover because of the rarity of the lexical noun self. One possible argument goes along the following lines. If there are two sources for self, the lexicon and the reflexive transformation, one would expect ambiguities to result. And in fact on close examination Postal's example phrase the expression of self in our society turns out to be ambiguous. This can be seen by giving unambiguous paraphrases for each of the readings: self-expression in our society paraphrases the reflexive reading, and self's expression in our society paraphrases the lexical reading.

The cross-linguistic evidence is also illuminating. Reflexivization is apparently a universal process, but in many languages (e.g. Spanish, French, German, Russian, Tongan) the reflexive pronoun (or any part of it) cannot possibly be taken as a lexical noun. These languages translate English lexical _self_ with a word which can also be translated as _personality_.

4. It should be pointed out that Chomsky's proposal was made in an effort to _explain_ the adjective constituency of _-ing_ derivatives. The proposal we will offer describes the facts more accurately but does not purport to explain them.

5. Another class of such verbs was studied by Quang (1966).

6. An apparent exception to the ungrammaticality of sentences like (69) is

(a) John reads the Bible (Koran, Talmud, etc.).

I suggest, however, that the appropriate analogy for (a) is not (69) but rather

(b) John reads Shakespeare (Racine, Tolstoy, etc.).

That is, that holy books, like the names of authors, are grammatically in the class of bodies of literature, which one can read in the generic sense.

7. Some evidence to be discussed later indicates that these are actually denominal rather than deverbal adjectives.

8. As Postal (1966) does, for example, by giving it the single syntactic feature /+reflexive/.

9. Actually, on a transformational analysis it appears that the stem of derivatives in -worthy is a nominalized verb. On the hypothesis of derivation in the lexicon as it has so far been formulated, however, it is not possible to exclude -worthy derivatives on this ground. This is because one of the tenets of the hypothesis is that words which can appear superficially as either nouns or verbs with no change in shape, such as praise, trust, and other possible stems of -worthy, have a neutral part-of-speech categorization in the lexicon; that is, they are unspecified as nouns or verbs, and thus their lexical syntactic feature matrices can be inserted in either category in a deep structure, since they are distinct from neither. But on the same reasoning, all such lexical items could be inserted in the position of the stem verb in the lexical frame for self- compound adjectives.

10. Actually, this conclusion is wrong and must be refined, since a little more searching reveals forms like objectionable, knowledgeable. We shall discuss these forms below.

11. The earliest such suggestion that I know of, and the only published one, is in Lees and Klima (1963), p.21. See Langacker (1966) for discussion. Postal and Ross have attempted to refine and generalize the notion of a "co-referentiality condition." Their results are not published.

12. It has been proposed (Lakoff 1965) that the verb break when used with a direct object is actually a causative; that is, that break is lexically intransitive, being put into transitive position by a causative transformation. Thus "Floyd broke the glass" is a transformational derivative of "Floyd caused the glass to break." If this analysis is correct, the "base" structure I have proposed for (197) is actually an intermediate structure which appears after the causative transformation has applied to produce the given structure of the embedded sentence. This has no bearing on my analysis. In particular, the verb-object selection still holds, however it must be formulated in the base. One cannot say "*Floyd broke time (the mountain, the little boy)."

13. See Rosenbaum (1965) for an extensive discussion of complements in English.

14. The exception to this "typical" exclusion is the class of perceptual statives, as in

He's hearing music.

Some speculation might therefore be made that appear in its straight reading belongs to this class, with the perceiving being on the part of the speaker rather than of the subject of the sentence.

15. David Perlmutter has studied some of these problems, and will report on his results in his M. I. T. dissertation (forthcoming).

16. I owe this observation to J. R. Ross.

17. The discrepancy between (273) and (274) is a problem regardless of the treatment of _-able_ derivation, of course. A possible direction to look for a solution is suggested by the fact that many of the verbs Lakoff analyzes as causatives (Lakoff 1965) can appear as complements of _can_ but not of _be able to_. For example:

(a) The door can open.
(b) *The door is able to open.
(c) Cloth can tear.
(d) *Cloth is able to tear.

18. See Chomsky and Halle (forthcoming) for justification of this assertion. My use here of "word boundary" corresponds to two consecutive double cross junctures (##) in their notation.

FOOTNOTES: SECTION III

1. We distinguish *extrinsic ordering* from *intrinsic ordering*, which is an automatic consequence of the formulation of the rules. See Chomsky 1965, p. 223 for discussion.

2. This was not generally known in 1958.

3. The importance of these facts for the discussion in Sections I and II should not be overlooked. I am claiming here that *meaning* is a lexical noun; but it would be perverse to maintain that it bears no relationship to the verb *mean*. If both words are lexical, then the relationship between them must be expressed in the lexicon. Thus the strong assumption of an idiosyncratic lexicon is wrong regardless of the validity or invalidity of my other arguments. This is a point in favor of the lexicalist hypothesis.

4. Some of these forms are homonymous with possible ABLE derivatives of varying degrees of naturalness. Thus *sensible* can be used in

(a) The gradual cooling of the room was barely sensible.

The *sensible* of the list, however, is as in

(b) He married a sensible girl.

Other possible homonyms are *fashionable*, *seasonable*, *comfortable*, *forcible*.

5. It is remarkable that none of the great students of English derivation seem to have noticed this fact.

6. This is perhaps the most extensively studied problem in English suffixation. See Marchand pp. 182-188 for discussion.

7. I owe this example to Bruce Fraser.

APPENDIX I

Self-ing adjectives

The data presented in this appendix were gathered as follows. The informant, a 25-year-old woman, college graduate, born and raised in New York City by native American parents who also grew up in New York City, was instructed to go through all of the compounds beginning with *self-* and ending with *-ing* listed in the *Normal English Word List*, Volume 4 (Brown 1963). She was first to note all the listed compounds which she found unacceptable. For the acceptable ones, she was asked to note three things: 1) Whether it was accurate to say that "a self-VERBing NOUN VERBs itself, (himself, herself)" where VERB is the stem of the compound and NOUN is any subject to which the compound may appropriately be attributed; (2) Whether NOUN could be human; (3) Whether NOUN could be a mechanical object. In the course of the work she volunteered the information that many of the compounds seemed to have the meaning expressed in the phrase "a self-VERBing NOUN VERBs *by* itself." She was then requested to note all of those which had this meaning, as well. The results follow.

Unacceptable forms listed in Brown (1963):

self-abandoning
self-actualizing
self-affecting
self-applauding
self-arching
self-arising
self-assuming
self-attracting
self-being
self-binding
self-boasting
self-burning
self-canting
self-committing
self-concerning
self-conditioning
self-confiding
self-congratulating
self-consoling
self-consuming
self-corresponding
self-cozening
self-creating
self-deifying
self-depending
self-deserving
self-devoting

self-disquieting
self-drawing
self-drinking
self-dropping
self-eating
self-evolving
self-exciting
self-exulting
self-farming
self-feeling
self-flowing
self-gaging
self-gratulating
self-hitting
self-impacting
self-issuing
self-jealousing
self-making
self-mediating
self-moving
self-naughting
self-neglecting
self-offering
self-originating
self-paying
self-perceiving
self-physicking
self-positing
self-possessing
self-prizing
self-procuring
self-pronouncing
self-propagating
self-proving
self-pulsing
self-quenching
self-rating
self-reading
self-realizing
self-reckoning
self-recording
self-refining
self-registering
self-relying
self-retaining
self-saturating
self-schooling
self-shadowing
self-shining
self-sinking
self-soothing
self-subsisting
self-surviving
self-tapping
self-thinking
self-troubling
self-undoing
self-warranting

Total: 85 forms

Questionable forms:

self-annealing
self-confounding
self-posting
self-renouncing
self-repeating
self-repelling
self-working

The form self-understanding and self-loathing were acceptable only as nouns. The remaining forms were judged acceptable.

We now list the acceptable forms in two categories, those for which the reflexive paraphrase is accurate and those for which it is not, either because the stem verb does not appear in the reflexive, or because the self-ing form can only be used to modify a noun which is not the referent of the reflexive pronoun. Forms in the second category are counter-examples in the informant's idiolect to the proposed rule SELFING.

The two categories are given as matrices. For each row, the first column of a matrix is the word. The second column tells whether it can be attributed to human nouns; those words which can are marked with a plus (+), the others with a minus (-). The third column indicates with plus or minus whether the word can be attributed to mechanical objects. The fourth column indicates with plus or minus whether the "by itself" paraphrase is accurate. The fifth column contains two kinds of special information: if a form cannot be attributed either to a human or to a mechanical object, a noun which it can modify is given. If the stem verb requires a preposition in a reflexive expression, e.g., commune ("John communes with himself"), a 'P' is entered and the preposition given in parentheses.

Some forms have two readings. These are listed twice. In some cases both readings are in the same matrix, in others they differ.

Self-ing forms with reflexive paraphrase

Word	Human	Mechanical	*by itself*	Other
self-abasing	+	-	-	
self-abhorring	+	-	-	
self-abominating	+	-	-	
self-accusing	+	-	-	
self-adapting	-	+	+	
self-adjusting	-	+	+	
self-advertising	-	-	+	brand
self-advertising	+	-	-	
self-afflicting	+	-	-	
self-aligning	-	+	+	
self-applying	-	+	+	
self-approving	+	-	-	
self-asserting	+	-	-	
self-boiling	-	+	+	
self-basting	-	+	+	
self-blinding	+	-	-	
self-boarding	+	-	-	
self-centering	-	+	+	
self-changing	-	+	+	
self-charging	-	+	+	
self-checking	-	+	+	
self-cleaning	-	+	+	
self-closing	-	+	+	
self-cocking	-	+	+	
self-coiling	-	+	+	
self-combating	-	-	-	attitude
self-communing	+	-	-	P(with)
self-comprehending	+	-	-	

Word	Human	Mechanical	by itself	Other
self-condemning	+	-	-	
self-conflicting	-	-	-	data, P(with)
self-conserving	-	+	-	
self-considering	+	-	-	
self-containing	-	+	+	
self-contracting	-	+	+	
self-contracting	+	-	-	
self-contradicting	+	-	-	
self-controlling	-	+	+	
self-cooking	-	+	+	
self-cutting	-	+	+	
self-deceiving	+	-	-	
self-defeating	+	-	-	
self-deluding	+	-	-	
self-demagnetizing	-	+	+	
self-denying	+	-	-	
self-destroying	-	+	+	
self-detaching	-	+	+	
self-developing	-	+	+	
self-devouring	+	-	-	
self-differentiating	-	-	+	data
self-directing	-	+	+	
self-disclosing	-	-	+	secret
self-disengaging	-	+	+	
self-disgracing	+	-	-	
self-dissecting	-	-	+	anything which can be dissected
self-disserving	+	-	-	
self-distinguishing	+	-	-	
self-distrusting	+	-	-	

Word	Human	Mechanical	by itself	Other
self-dumping	-	+	+	
self-easing	-	+	+	
self-effacing	+	-	-	
self-emptying	-	+	+	
self-enriching	+	-	-	
self-evidencing	-	-	+	phenomenon
self-exalting	+	-	-	
self-examining	+	-	-	
self-excusing	+	-	-	
self-executing	-	-	+	plan
self-explaining	+	-	-	
self-exploiting	+	-	-	
self-fearing	+	-	-	
self-feeding	+	+	+	
self-filling	-	+	+	
self-fitting	-	+	+	
self-flattering	+	-	-	
self-fluxing	-	+	+	
self-focusing	-	+	+	
self-folding	-	+	+	
self-forgetting	+	-	-	
self-furring	-	+	+	
self-gauging	-	+	+	
self-generating	-	+	+	
self-giving	+	-	-	P (of)
self-glorying	+	-	-	P (in)
self-governing	+	-	+	
self-harming	+	-	-	
self-healing	-	-	+	wound
self-heating	-	+	+	

Word	Human	Mechanical	by itself	Other
self-helping	+	-	+	
self-humbling	+	-	-	
self-idolizing	+	-	-	
slef-immolating	+	-	-	
self-immuring	+	-	-	
self-impregnating	-	+	+	
self-improving	+	-	-	
self-indulging	+	-	-	
self-inking	-	+	+	
self-intensifying	-	+	+	
self-interpreting	-	-	+	data, idea
self-interrupting	+	-	-	
self-judging	+	-	-	
self-justifying	+	-	-	
self-justifying	-	+	+	
self-killing	+	-	-	
self-knowing	+	-	-	
self-lacerating	+	-	-	
self-lashing	+	-	-	
self-leveling	-	+	+	
self-lighting	-	+	+	
self-liking	+	-	-	
self-limiting	+	-	-	
self-limiting	-	+	+	
self-liquidating	-	-	+	organism
self-loading	-	+	+	
self-locating	-	+	+	
self-locking	-	+	+	
self-loving	+	-	-	
self-lubricating	-	+	+	

Word	Human	Mechanical	by itself	Other
self-mailing	-	+	+	
self-mastering	+	-	-	
self-multiplying	-	+	+	
self-oiling	-	+	+	
self-opening	-	+	+	
self-pampering	+	-	-	
self-perfecting	+	-	-	
self-perpetuating	-	-	-	reaction, committee
self-pitying	+	-	-	
self-playing	-	+	+	
self-pleasing	+	-	-	
self-policing	-	+	+	
self-praising	+	-	-	
self-preserving	-	+	+	
self-priming	-	+	+	
self-propelling	-	+	+	
self-protecting	-	+	+	
self-pruning	-	+	+	
self-punishing	+	-	-	
self-purifying	-	+	+	
self-raising	-	+	+	
self-rectifying	-	+	+	
self-refuting	-	-	-	data
self-regulating	-	+	+	
self-repressing	-	+	+	
self-reproaching	+	-	-	
self-reproducing	-	+	+	
self-respecting	+	-	-	
self-restoring	-	+	+	
self-revealing	-	-	+	secret

Word	Human	Mechanical	by itself	Other
self-righting	-	+	+	
self-rising	-	+	+	
self-sacrificing	+	-	-	
self-sealing	-	+	+	
self-serving	+	-	-	
self-spacing	-	-	+	objects
self-starting	-	+	+	
self-stowing	-	+	+	
self-supporting	+	-	-	
self-supporting	-	+	+	
self-surrendering	+	-	-	
self-sustaining	-	+	+	
self-thinning	-	+	+	
self-threading	-	+	+	
self-tightening	-	+	+	
self-tipping	-	+	+	
self-toning	-	+	+	
self-tormenting	+	-	-	
self-torturing	+	-	-	
self-triturating	-	+	+	
self-trusting	+	-	-	
self-unloading	-	+	+	
self-unveiling	-	+	+	
self-valuing	+	-	-	
self-vulcanizing	-	+	+	
self-whipping	-	+	+	
self-winding	-	+	+	
self-wiping	-	+	+	
self-worshipping	+	-	-	

Self-ing forms without reflexive paraphrase

Word	Human	Mechanical	by itself	Other
self-acting	-	+	+	
self-aggrandizing	-	-	-	manner
self-answering	-	+	+	
self-betraying	-	-	-	"
self-determining	+	+	+	
self-hardening	-	+	+	
self-preserving	-	-	-	"
self-questioning	-	-	-	"
self-regarding	-	-	-	"
self-reproving	-	-	-	"
self-restraining	-	-	-	"
self-rewarding	-	-	+	action
self-satisfying	-	-	+	"
self-scourging	-	-	-	manner
self-scrutinizing	-	-	-	"
self-searching	-	-	-	"
self-seeking	-	-	-	"
self-serving	-	-	-	"
self-terminating	-	-	+	series
self-testing	-	-	-	manner
self-trusting	-	-	-	"
self-upbraiding	-	-	-	"
self-vaunting	-	-	-	"
self-vindicating	-	-	-	"
self-worshipping	-	-	-	"
self-wounding	-	-	-	"

Analysis

Of the 202 acceptable forms (counting forms with two readings twice) 176 have the reflexive paraphrase. There are observable subregularities in the remaining 26. 19 of them fit in the frame "He behaved in a _______ manner," and 2 in the frame "His actions were _______." For these 21 forms there is an appropriate referent for the reflexive pronoun, although it is not the noun which the self-ing compound modifies. This class is discussed in the text (II.B.6). The remaining five forms--self-acting, self-answering, self-determining, self-hardening, and self-terminating are true counterexamples to the proposed SELFING.

These five forms can all take the "by itself" paraphrase. This fact, together with the almost perfect correlation between /+mechanical/ and /+by itself/ (the only form which is /+mechanical/, /-by itself/ is self-conserving) suggest that the "mechanical" self-ing forms are actually the result of a different rule, in which they are derived from a "by itself" phrase. It must be noted, however, that not all of the forms which can take the by itself paraphrase can do so without an intervening reflexive pronoun, "it VERBs itself by itself." Some which cannot are self-containing, self-controlling, self-fluxing, self-policing, self-preserving, self-propelling, self-supporting. There appears to be a strong correlation between inchoative stem verbs (see Lakoff 1965) and derivative self-ing forms which can take a "by itself" paraphrase with no intervening reflexive pronoun. Thus a self-starting car starts by itself, a self-opening door opens by itself, a self-coiling rope coils by itself; and one can say "The car started," "The door opened," "The rope coiled (when I wasn't holding it)."

APPENDIX II

Adjectives in -able

As mentioned in the text, there are approximately 3600 forms ending in -able listed in the Reverse English Word List as well as about 550 forms ending in -ible. Evaluating such a huge quantity of data would have been too great a burden for the informant. It was therefore decided to reduce the data by the arbitrary method of examining only every fourth page of the forms in -able, beginning with page 620 (of Volume 5) and ending with page 652. 900 forms were thus initially considered. It is not claimed that these constitute a random sample; the (reverse) alphabetic sort no doubt resulted in various biases. Since we are not here concerned with statistical analysis, this is not important. The only aspect of the sampling technique that may have affected our conclusions is the omission of all forms in -ible from consideration.

Since the English Word List is compiled directly from a selection of dictionaries, including Webster's Second Unabridged, it frequently happens that several differently prefixed forms of the same word are listed. Where this was the case, only the non-prefixed form was considered, unless the simple negatively prefixed form was more acceptable than the affirmative (e.g. insuperable, unutterable) or there was a significant meaning difference (e.g. integrable, disintegrable).

The informant was first requested simply to distinguish acceptable from non-acceptable forms, as in the self-ing cases (which she did first). After some evaluation, she discovered that two degrees of acceptability were insufficient to express her intuitions. Five degrees of acceptability were discriminated: normal, acceptable, peculiar, unacceptable, and unrecognized. The unacceptable and unrecognized forms were not considered further. The other forms were checked for bound stems and noun stems. These two categories were noted and not considered further (it turned out that all forms with bound stems and noun stems checked were rated "normal," the highest degree of acceptability).

The remaining forms were tested for their regularity according to the ABLE rule. This was done with the test frame "A VERBable NOUN is a NOUN which can be VERBed." Two kinds of deviation from regularity were noted: those forms for which the passive voice of the subordinate clause "which can be VERBed" was wrong, either because NOUN was understood as the subject of VERB rather than its object, or for some other reason; and those forms for which the modal "can" in the subordinate clause was wrong, the sense of the derivative being some other modal or modal phrase (e.g. "is to"). Deviations of the first sort are indicated in the table by a minus (-) in the column headed Object. The second sort of deviations are marked by a minus in the column headed Potentiality. Non-deviant forms are marked with a plus (+). Forms with pluses in both columns are regular according to ABLE.

Unacceptable forms

indicable
vindicable
trafficable
edificable
modificable
sacrificable
falsificable
multiplicable
theatricable
masticable
prognosticable
intoxicable
locable
dreadable
treadable
roadable
imageable
homageable
passageable
voyageable
siegeable
allegeable
indulgeable
vengeable
revengeable
gorgeable
scribbleable
mingleable
smileable
judiciable
justiceable
denunciable
renunciable
annunciable
pronunciable
associable
commerciable
excruciable
radiable
tidiable
parodiable
repudiable
studiable
defiable
rarefiable
putrefiable
signifiable
glorifiable
petrifiable
versifiable
democratifiable
sanctifiable
reconcilable
annihilable
ventilable
exilable
appellable
counsellable
ravellable
dwellable
willable
tollable
nullable
pullable
percolable
discriminable
nominable
denominable
germinable
opinable
urinable
predestinable
ruinable
twinable
magazinable
condemnable
scannable
tannable
sinnable
shunnable
punnable
runnable
donable
guerdonable
pigeonable
wagonable
suspicionable
opinionable
occasionable
reversionable
impassionable
expressionable
illusionable
collocationable
educationable
conversationable
vituperable
commiserable
iterable
obliterable
shelterable
enterable
encounterable
fosterable
musterable
batterable
scatterable
waverable
pulverable
overable
disintegrable
respirable
transpirable
inspirable
perspirable
expirable
inquirable
conversable
incessable
professable
rousable
abatable
liquidatable
eatable
merchantable
tenantable
pleasantable
percentable
precedentable
indentable
repentable
consentable
tentable
frequentable
acquaintable
pointable
huntable
recountable
dismountable
ballotable
denotable
mootable
votable
deprivable
activable
absolvable
resolvable
dissolvable
evolvable
revolvable
reprovable
approvable
disapprovable
gnawable
withdrawable
eschewable
viewable
reviewable
screwable
sewable

Unrecognized forms

plicable
manducable
tallageable
congeable
inenucleable
saponifiable
stonifiable
nitrifiable
vitrifiable
gasifiable
emulsifiable
preallable
forestallable
millable
malleolable
agglutinable
deflagrable
intarissable
conusable
rackrentable
arrentable
incopresentable
heriotable
amovable
resinifiable
permifiable

Forms with bound stems

amicable
sociable
unconscionable
insuperable
miserable
potable

Forms with noun stems

knowledgeable
fashionable
companionable
impressionable
fissionable
actionable
objectionable

Acceptable forms classified

Key to level of "Acceptability":
1 = Normal
2 = Acceptable
3 = Peculiar

Word	Acceptability	Object	Potentiality
medicable	2	+	+
predicable	1	+	+
judicable	2	+	+
implicable	2	+	+
applicable	1	+	+
duplicable	1	+	+
explicable	1	+	+
communicable	1	+	+
excommunicable	3	+	+
despicable	1	+	-
extricable	3	+	+
practicable	1	+	+
domesticable	1	+	+
relocable	1	+	+
allocable	1	+	+
dislocable	2	+	+
reciprocable	1	+	+
evocable	2	+	+
revocable	1	+	+
invocable	2	+	+
confiscable	3	+	+
obfuscable	3	+	+
educable	2	+	+
leadable	2	+	+
pleadable	2	+	+
misleadable	2	+	+
kneadable	2	+	+

Word	Acceptability	Object	Potentiality
readable	1	+	+
threadable	3	+	+
fadable	2	+	-
gradable	3	+	+
degradable	3	+	+
tradable	3	+	+
persuadable	2	+	+
dissuadable	2	+	+
evadable	2	+	+
invadable	2	+	+
wadable	3	+	+
pillageable	3	+	+
damageable	2	+	+
disparageable	2	+	+
manageable	1	+	+
discourageable	2	+	-
stageable	2	+	+
assuageable	2	+	+
salvageable	1	+	+
pledgeable	3	+	+
acknowledgeable	2	+	+
wedgeable	2	+	+
bridgeable	2	+	+
abridgeable	2	+	+
lodgeable	3	+	+
dislodgeable	3	+	+
budgeable	3	+	+
judgeable	2	+	+
changeable	1	-	-
exchangeable	2	+	+
derangeable	3	+	+
arrangeable	3	+	+

Word	Acceptability	Object	Potentiality
challengeable	1	+	-
avengeable	3	+	+
infringeable	2	+	+
expungeable	3	+	+
chargeable	2	+	+
dischargeable	3	+	+
enlargeable	2	+	+
forgeable	2	+	+
purgeable	3	+	+
gaugeable	2	+	+
batheable	2	+	+
swatheable	2	+	+
shakeable	2	+	+
slakeable	3	+	+
takeable	3	+	+
likeable	1	+	-
smokeable	2	+	+
yokeable	2	+	+
rebukeable	2	+	+
garbleable	3	+	+
riddleable	3	+	+
cuddleable	1	+	-
handleable	3	+	+
swindleable	3	+	+
smuggleable	2	+	+
strangleable	3	+	+
wrinkleable	3	+	-
depreciable	2	+	+
appreciable	1	+	+
fanciable	3	+	+
enunciable	3	+	+
dissociable	2	+	+

Word	Acceptability	Object	Potentiality
remediable	1	+	+
liquifiable	1	+	+
pacifiable	1	+	+
specifiable	1	+	+
acidifiable	2	+	+
solidifiable	2	+	+
modifiable	1	+	+
alkalifiable	2	+	+
salifiable	2	+	+
qualifiable	2	+	+
disqualifiable	2	+	+
mollifiable	2	+	+
amplifiable	2	+	+
exemplifiable	3	+	+
magnifiable	2	+	+
unifiable	2	-	+
verifiable	1	+	+
terrifiable	3	+	+
electrifiable	2	+	+
purifiable	2	+	+
falsifiable	1	+	+
diversifiable	3	+	+
gratifiable	2	+	+
rectifiable	1	+	+
defilable	2	+	+
assimilable	1	+	+
boilable	1	+	-
foilable	3	+	+
spoilable	1	-	+
callable	2	+	+
recallable	2	+	+
cancellable	2	+	+
fellable	3	+	+

Word	Acceptability	Object	Potentiality
smellable	2	+	+
repellable	3	+	+
compellable	3	+	+
propellable	3	+	+
spellable	3	+	+
expellable	3	+	+
sellable	2	+	+
tellable	3	+	+
foretellable	2	+	+
quellable	3	+	+
unravellable	1	+	+
travellable	3	+	+
billable	3	+	+
fillable	3	+	+
fulfillable	2	+	+
killable	3	+	+
spillable	2	+	+
drillable	3	+	+
tillable	2	+	+
distillable	2	+	+
pollable	3	+	+
rollable	3	+	+
controllable	2	+	+
annullable	1	+	+
violable	2	+	+
crossexaminable	2	+	+
eliminable	1	+	+
minable	2	+	+
abominable	1	+	-
underminable	2	+	+

Word	Acceptability	Object	Potentiality
terminable	2	+	+
interminable	1	-	-
determinable	1	+	+
exterminable	2	+	+
illuminable	2	+	+
coinable	3	+	+
joinable	3	+	+
conjoinable	1	+	+
disjoinable	1	+	+
quarantinable	2	+	+
divinable	3	+	+
damnable	1	+	-
spinnable	3	+	+
winnable	3	+	+
abandonable	3	+	+
condonable	2	+	+
pardonable	2	+	-
pensionable	3	+	+
rationable	3	+	+
whisperable	3	+	+
reiterable	3	+	+
alterable	2	+	+
filterable	1	+	+
centerable	2	+	+
charterable	2	+	+
masterable	2	+	+
flatterable	3	+	+
betterable	1	+	+
unutterable	1	-	-
flutterable	3	+	+
conquerable	3	+	+
reverable	3	+	+

Word	Acceptability	Object	Potentiality
severable	2	+	+
deliverable	2	+	+
recoverable	1	+	+
uncoverable	1	+	+
discoverable	1	+	+
maneuverable	1	+	+
lowerable	3	+	+
answerable	1	-	-
answerable	2	+	+
integrable	2	+	+
airable	3	+	+
repairable	1	+	+
impairable	2	+	+
hirable	3	+	+
admirable	1	+	-
desirable	1	+	-
tirable	3	+	+
acquirable	2	+	+
requirable	3	+	-
wirable	2	+	+
endorsable	2	+	+
reimbursable	1	+	+
disbursable	3	+	+
nursable	3	+	+
classable	1	+	+
amassable	3	+	+
passable	1	-	-
impassable	1	+	+
compassable	2	+	+
surpassable	2	+	+
harassable	3	+	+
confessable	2	+	+

Word	Acceptability	Object	Potentiality
witnessable	2	+	+
redressable	3	+	+
pressable	2	+	+
impressable	3	+	+
expressable	2	+	+
assessable	2	+	+
unpossessable	1	+	+
guessable	2	+	+
kissable	3	+	+
missable	3	+	+
dismissable	2	+	+
crossable	2	+	+
discussable	2	+	+
mussable	3	+	+
usable	1	+	+
causable	3	+	+
abusable	3	+	+
accusable	3	+	+
focusable	3	+	+
excusable	2	+	+
refusable	2	+	+
suffusable	3	+	+
confusable	3	+	+
amusable	2	+	+
espousable	3	+	+
arousable	3	+	+
perusable	3	+	+
analyzable	1	+	+
debatable	1	+	+
rebatable	2	+	+
combatable	1	+	+
vacatable	2	+	+

Word	Acceptability	Object	Potentiality
allocatable	2	+	+
confiscatable	2	+	+
educatable	2	+	+
datable	1	+	+
beatable	2	+	+
defeatable	2	+	+
chantable	2	+	+
plantable	2	+	+
supplantable	3	+	+
transplantable	2	+	+
grantable	2	+	+
warrantable	1	+	+
lamentable	1	+	-
augmentable	2	+	+
complementable	3	+	+
fermentable	2	+	+
tormentable	3	+	+
rentable	2	+	+
presentable	1	+	-
representable	3	+	+
patentable	1	+	+
contentable	3	+	+
preventable	1	+	+
inventable	3	+	+
ventable	3	+	+
paintable	2	+	+
taintable	3	+	+
appointable	2	+	+
disappointable	2	+	+
printable	2	+	+
confrontable	3	+	+
dauntable	3	+	+

Word	Acceptability	Object	Potentiality
countable	2	+	+
unaccountable	1	+	+
discountable	2	+	+
mountable	3	+	+
surmountable	2	+	+
promotable	3	+	+
notable	1	+	-
shootable	2	+	+
lootable	2	+	+
quotable	1	+	+
conceivable	2	+	+
perceivable	2	+	+
forgivable	2	+	+
livable	2	-	+
drivable	2	+	+
derivable	1	+	+
cultivable	1	+	+
revivable	1	+	+
survivable	2	+	+
salvable	3	+	+
solvable	2	+	+
lovable	1	+	+
movable	1	+	+
removable	2	+	+
immovable	1	+	+
provable	1	+	+
improvable	1	+	+
disprovable	1	+	+
servable	2	+	+
observable	1	+	+
reservable	3	+	+
preservable	2	+	+

Word	Acceptability	Object	Potentiality
conservable	2	+	+
swervable	3	+	+
drawable	2	+	+
hewable	2	+	+
chewable	2	+	+
interviewable	3	+	+
renewable	1	+	+

Deviant forms

/-Object/
/-Potentiality/

changeable
interminable
unutterable
answerable
passable

/-Object/

unifiable
spoilable
livable

/-Potentiality/

despicable
fadable
discourageable
challengeable
likeable
cuddleable
wrinkleable
boilable
abominable
damnable
pardonable
admirable
desirable
requirable
lamentable
presentable
notable

Analysis

Of the 322 forms finally judged acceptable at some level, 297 were regular according to ABLE. The 25 deviant forms were divided as follows: 5 were deviant both in the "object" and "potentiality" columns, 3 were deviant only in the "object" column, and the remaining 17 were deviant only in the "potentiality" column. 2 deviant forms were judged to have acceptability 3, 5 had acceptability 2, and the remaining 18 were acceptable 1, "normal." All of the 5 forms deviant in both columns were acceptable 1.

An interesting sidelight to emerge from this study was the informant's observation that in a large majority of cases the prefixed negative form of the *-able* derivative was more acceptable than the affirmative form. Furthermore, the increase in acceptability was systematic. On a 4-level acceptability scale (excluding "unrecognized" forms), the negations of forms on levels 2 and 3 were acceptable at levels 1 and 2, respectively. Negation of level 1 forms was level 1. Level 4 forms, "unacceptable," negated, remained level 4 or became level 1.

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